

C. V. Riley

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VOLUME II.

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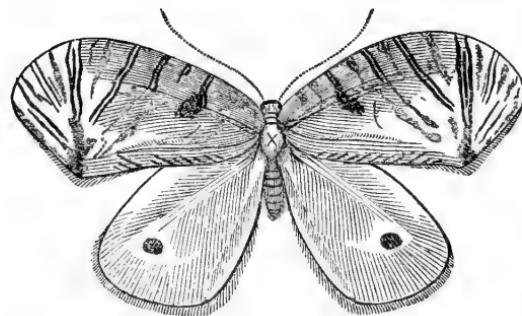
THE

ENTOMOLOGIST:

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VOLUME II.



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EDWARD NEWMAN, 9, DEVONSHIRE STREET,
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1864—5.

The helpless, crawling caterpillar trace
From the first period of his reptile race.
Clothed in dishonour, on the leafy spray
Unseen he wears his silent hours away ;
Till, satiate grown of all that life supplies,
Self-taught, the voluntary martyr dies.
Deep under earth his darkling course he bends,
And to the tomb a willing guest descends ;
There, long secluded in his lonely cell,
Forgets the sun, and bids the world farewell.

O'er the wide wastes the wintry tempests reign,
And driving snows usurp the frozen plain :
In vain the tempest beats, the whirlwind blows ;
No storms can violate his grave's repose.

But when revolving months have won their way,
When smile the woods, and when the zephyrs play,
When laughs the vivid world in summer's bloom,
He bursts, and flies triumphant from the tomb ;
And while his new-born beauties he displays,
With conscious joy his altered form surveys.
Mark, while he moves amid the sunny beam,
O'er his soft wings the varying lustres gleam.
Launched into air, on purple plumes he soars,
Gay Nature's face with wanton glance explores ;
Proud of his varying beauties, wings his way,
And spoils the fairest flowers, himself more fair than they.

ANON.

PREFACE.

THE 'ENTOMOLOGIST' was projected and commenced in October, 1840, the first number being published on the 1st of November of that year. The First Volume, consisting of twenty-six sixpenny numbers, was completed on the 1st of December, 1842, with the following announcement:—

"The 'Entomologist' under its present title will now cease, but the spirit of the work, more particularly as regards those brief but highly interesting communications which my correspondents have from time to time contributed to the chapter intituled 'Varieties,' will be continued in the pages of the 'Zoologist.'"

This announcement was literally and effectively carried out, the 'Zoologist' being the only medium through which entomologists corresponded until April, 1856, when Mr. Stainton commenced the 'Entomologist's Weekly Intelligencer,' and thus divided the entomological public. The 'Intelligencer' came to a close in 1861, Mr. Stainton writing thus in explanation:—

"Entomology in England is passing through a phase of depression; we doubt much if we could now make out a list of 500 English entomologists: to what extent this may have arisen from the Volunteer movement, the deleterious effects of which have been so great, it is impossible to say; but this is evident, that, as action and reaction are equal and opposite, and as a few years back Entomology in England was unnaturally buoyant, so now it is depressed in a corresponding degree."

My entomological correspondents seemed to think differently; for not only during the existence of the 'Intelligencer' was I repeatedly pressed to undertake a journal devoted to the Science, but in the interval between the demise of the 'Intelligencer' and the birth of the short-lived 'Weekly Entomologist' I had no less than ninety-seven pressing solicitations to commence an entomological periodical.

After waiting a while to ascertain whether anyone would venture on the vacated territory, and painfully aware of the overcrowded state of the 'Zoologist,' leading to the postponement, and sometimes to the rejection, of papers of great interest, which I should have been only too glad to publish, I yielded to pressure, and determined to revive the 'Entomologist.'

Like Rip van Winkle, it awoke after a twenty years' slumber, rubbed its eyes, and stepped forth amongst its living namesakes with all the formality of its pristine appearance. A few months have altered this, and the 'Entomologist' of '65, although commenced with due solemnity, is as different from the 'Entomologist' of '42 as good sound Saxon is from the canine Latin in which I formerly had the misfortune to rejoice. It became obvious that I had mistaken my calling. I had no skill in that very peculiar language which, like the Rev. Edward Irving's, owes its popularity to its obscurity.

No sooner was the changed character of the 'Entomologist' apparent than entomologists came fluttering round me like moths to sugar: they could not fail to be struck with the change they had effected, and with the altered tone of a periodical which, on awaking, threatened such rigid formality, and which has in a few short months become the most free-and-easy of all scientific journals.

Whoever wants Volume I. will, I fear, want in vain; it reposes in peace on the shelves of the British Museum, the Universities, and the learned societies, but has long since disappeared from the bookseller's counter. The inconvenience of the late appearance of this second volume is, however, more than counterbalanced by the non-necessity for a new name. Purchasers need not be told that each volume is complete in itself, and has no necessary connexion with the other.

EDWARD NEWMAN.

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No. 1.]

MAY, MDCCCLXIV.

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Analytical Notice of the 'Entomologist's Annual' for 1864. London: John Van Voorst, Paternoster Row. Fcp. 8vo. 172 pp. letterpress; 1 plain Plate. Price Half-a-crown.

EVER welcome is Mr. Stainton's 'Annual.' Should he abandon it a gap in entomological literature would be severely felt, unless some other devoted patron of the Science supplied its place. The present 'Annual' is inferior to none that have preceded it, either in the quantity or quality of its contents; and I believe the only alteration that can be spoken of as derogating from its value—I mean, of course, the non-coloration of the plate—was a matter of accident, and not of design. The contents are as under:—

1. Travel. By H. T. Stainton, F.L.S.
2. A Journey to Finmark. By Dr. Wocke and Dr. Staudinger.
3. Coleoptera.—New British Species, Corrections, &c., noticed since the publication of the 'Entomologist's Annual,' 1863. By E. C. Rye.
4. On the Variation of Species. By H. W. Bates.
5. The Species of the Lepidopterous Genus *Ino* of Leach, together with some Preliminary Remarks on Local Varieties. By Dr. Staudinger.
6. Hymenoptera.—Notes on Hymenoptera. By Frederick Smith.
7. Lepidoptera.—Notes on New and Rare Species of Lepidoptera (excepting *Tineina*) for 1863, by H. G. Knaggs, M.D.; with Descriptions of Two Species of *Noctua* new to Science, by Henry Doubleday.
8. Notes on British Trichoptera. By R. M'Lachlan, F.L.S.
9. Hemiptera.—Additions to the Fauna of Great Britain, and Descriptions of Two New Species. By John Scott.

10. Observations on Tineina. By H. T. Stainton, F.I.S.
Addresses of Entomologists.

It is necessary to state that many of these articles are extracted, in whole or in part, from other sources,—a practice which certainly detracts nothing from their value, but which renders it unnecessary for me to do more than refer my reader to the originals.

Art. 2, extending to 24 pages, is translated from the Stettin 'Entomologische Zeitung' for 1861, pp. 325—341.

Art. 4, extending to 8 pages, is extracted from 'The Naturalist on the Amazons,' by H. W. Bates, vol. i. pp. 255—265.

Art. 5, extending to 13 pages, is translated from the Stettin 'Entomologische Zeitung' for 1862, pp. 341—359.

The remaining papers are more or less original.

Mr. Stainton's paper, Art. 1, intituled "Travel," is—not very intelligible: it appears that he has visited Parà with Mr. Bates, the Organ Mountains with Mr. Hinchliff, Newfoundland and Labrador with Mr. Noble, Newcastle by himself, the Eastern Archipelago with Mr. Wallace, Frankfort with Frey and Heyden, and Norway with Staudinger and Wocke. As in the modern system of bathing, the extremes of heat and cold were very marked, and I hope invigorating and beneficial to the patient: the information conveyed by the paper is *nil*.

Mr. Rye's paper is one of great value; but so many of the species mentioned have been noticed in the 'Zoologist' that I can do no more than repeat the references, making a few brief observations on those which now appear for the first time. Forty species have been added to our catalogue of Coleoptera during the year; four of these are new to Science, and twelve have been confounded with others already known as English. I will enumerate the species noticed, as arranged and numbered by the author; Mr. Rye makes Mr. Waterhouse's 'Catalogue' his start-point, and gives them as additions and emendations to that useful work.

1. *Amara brunnea* of Gyllenhal to be struck out, for the reason assigned by Mr. Rye, Zool. 8530.

2. *Trechus obtusus* of Erichson to be added. See Zool. 8615.

3. *Bembidium Fockii* of Hummel to be added. See Zool. 8610.
4. *Bembidium Mannerheimii* of Sahlberg to be added. See Zool. 8652.
5. *Aleochara inconspicua* of Aubé to be added. See Zool. 8534.
6. *Oxypoda umbrata* of Mannerheim to be added. See Zool. 8476.
7. *Oxypoda lentula* of Erichson to be added. See Zool. 8614.
8. *Oxypoda misella* of Kraatz to be added. See Zool. 8615.
9. *Homalota velox* of Kraatz to be added. See Zool. 8453.
10. *Homalota oblonga* of Erichson to be added. See Zool. 8480.
11. *Homalota planifrons* of Waterhouse to be added. See Zool. 8667.
12. *Homalota puncticeps* of Thomson to be added. See Zool. 8453.
13. *Homalota maritima* of Waterhouse to be added. See Zool. 8453.
14. *Homalota gemina* of Erichson to be added. See Zool. 8453.
15. *Homalota Soror* of Kraatz to be added. See Zool. 8455.
16. *Homalota vilis* of Erichson to be added. See Zool. 8453.
17. *Homalota fusco-femorata* of Waterhouse to be added. See Zool. 8453.
18. *Homalota angusticollis* of Thomson to be added. See Zool. 8453.
19. *Homalota dilaticornis* of Kraatz to be added. See Zool. 8416.
20. *Homolata lœvana* of Mulsant to be added. See Zool. 8416.
21. *Homalota parva* of Sahlberg. This is a mere correction of nomenclature, required by an accidental misprint: the species = *H. parvula* of Mannerheim (Kirby), Stephens; and the *H. cauta* of Erichson.

22. *Oligota granaria* of Erichson, having been expunged in 1859 by mistake, is to be restored.

23. *Bryoporus?* *castaneus* of Hardy and Bold is to be added. See Zool. 8480. It is probable, however, that both names must be changed, since the generic name is only applied doubtfully; and the specific name was applied in error, on the supposition that the species was identical with *Megacronus castaneus* of Stephens, which proves to be an immature example of *Boletobius analis*.

24. *Mycetoporus longulus* of Mannerheim to be added. See Zool. 8479.

25. *Mycetoporus nanus* of Gravenhorst to be added. See Zool. 8612 and 8652.

26. *Mycetoporus longicornis* of Kraatz to be added. See Zool. 8611.

27. *Philonthus succicola* of Thomson to be substituted for *Philonthus carbonarius* of Gyllenhal.

28. *Philonthus temporalis* of Mulsant to be added. See Zool. 8477.

29. *Philonthus agilis* of Gravenhorst to be added. See Zool. 8649.

30. *Philonthus rubripennis* of (Kirby) Stephens, and Waterhouse's 'Catalogue of Coleoptera'; it is thought possibly to be identical with *P. fulvipes* of Fabricius.

31. *Xantholinus chalybaeus* of Brullé. This magnificent tropical species, the capture of which is recorded Zool. 8413, cannot possibly be added to our lists.

31*. *Bledius erraticus* of Erichson to be added, described in Fairmaire and Laboulbène's Faun. Ent. France, iii. 605, 18.

32. *Trogophlæus tenellus* of Erichson to be added: it was discovered and determined by Mr. C. Waterhouse, who took it at Kingsbury Reservoir. "It most nearly resembles *T. pusillus*, but may be distinguished from that species by its smaller size and decidedly narrower form; the elytra, moreover, are fuscous instead of fusco-testaceous, and the head and thorax almost of the same width, the latter a very little narrower than the elytra, with its sides somewhat contracted towards the base and scarcely rounded in front, the foveæ on the disk being somewhat indistinct; the thorax may be shortly described as subquadrate instead of transversely subcordate, as in *Trogophlæus pusillus*."—P. 58.

33. *Omalium riparium* of Thomson to be added. See Zool. 8416.

34. *Omalium rugulipenne* (a new species) to be added. "This species has the general form, appearance and size of *O. rivulare*, but differs from that insect in having the antennæ shorter and entirely pale, the elytra longer and densely rugulose, the neck alutaceous, and with very few and indistinct punctures, and the thorax with the region of the posterior angles likewise alutaceous, with scarcely any trace of punctures, whereas in *O. rivulare* the neck and region of the posterior angles of the thorax are glossy and strongly punctured. In most of these distinctive characters this species approaches *O. riparium*, from which, however, its shorter antennæ and rugosely-punctured elytra will serve to distinguish it; and although *O. cæsum* and *O. Allardi* come somewhat nearer to it in this latter respect, their elytra are comparatively too short, with the punctures too gentle and not sufficiently confluent."—P. 60. Named from a single specimen taken near London, and in Mr. Rye's cabinet.

35. *Omalium testaceum* of Erichson to be added. See Zool. 8650.

36. *Omalium brevicorne* of Erichson to be added. See Zool. 8650.

37. *Omalium crassicornis* of Matthews to be added. See Zool. 8650.

38. *Omalium nigrum* of Gravenhorst to be added. See Zool. 8650.

39. *Hydnobius strigosus* of Schmidt. This species was included in Mr. Waterhouse's 'Pocket Catalogue of British Coleoptera,' dated 1861: it has been described by Schmidt, Erichson and Thomson. It has been taken by sweeping at Hammersmith, and is in the collection of Dr. Power.

40. *Helophorus dorsalis* of Mulsant to be added. See Zool. 8610.

41. *Helophorus æneipennis* of Thomson to be added. See Zool. 8611.

42. *Helophorus arvernicus* of Mulsant to be added. See Zool. 8611.

43. *Philhydrus maritimus* of Thomson to be added. Of this species Mr. Rye says:—"I have taken this species in brackish water at Gravesend. It is very like *P. testaceus*,

Fab., but is rather more shiny, a little narrower, and more oblong, the punctuation not quite so close, and a trifle more distinct; the palpi are entirely testaceous (not having the penultimate joint pitchy), and the club of the antennæ not so black; the head also is only slightly infuscate in the middle, whilst in *P. testaceus* it is decidedly black, with the sides of the clypeus testaceous. According to Thomson's description (*loc. cit.*) the femora appear to differ in colour in the two species, being black with the extreme apex pale in *P. testaceus*, and blackish with the upper side of the apex testaceous in *P. maritimus*, but these last-mentioned minute differences of colour can scarcely be relied upon as constant, and the insects could only present the proper tone when alive."—P. 67.

44. *Philhydrus nigricans* of Zetterstedt to be added. See Zool. 8611.

45. *Philhydrus ovalis* of Thomson to be added. See Zool. 8611.

46. *Athous undulatus* of Degeer to be added. See Zool. 8735.

47. *Cis lineato-cibratus* of Mellié to be added. See Zool. 8792.

47*. *Bagous nodulosus* of Schönherr to be expunged.

48. *Zeugophora Turneri* of Power to be added. See Zool. 8735.

49. *Cryptocephalus Wasastjernii* of Gyllenhal to be added. See Zool. 8413.

50. *Scymnus 4-lunulatus* of Illiger to be added. See Zool. 8894, where Mr. Waterhouse gives very full particulars, which, not being published until after the 'Annual,' Mr. Rye was unable to give the reference.

51. *Ptilium affine* of Erichson to be added. See Zool. 8649.

Mr. Smith's paper, intituled "Notes on Hymenoptera," is this year very meagre: he admits that a little spice of romance might have made it more piquant and attractive, but he declines making that additon. He complains of the great scarcity of Hymenoptera during 1863, but mentions that he has captured near Lowestoft a specimen of the rare *Didineus lunicornis*, a male of *Myrmica lippula* at Corfe Castle, in Dorsetshire, and a specimen of *Hemicroa Alni* op-

alder, an insect which he suggests may be the male of *Eriocampa ovata*. I have beaten these two insects at the same time into my umbrella, and have placed them together in my cabinet, but I have no proof of their identity.

Dr. Knaggs, in the paper intituled "Notes on New and Rare Lepidoptera," records the occurrence of five species of Lepidoptera new to Britain, and two of them new to Science, besides the restoration of *Lycæna Dorylas* to its former place in our catalogues ; these are :—

1. *Procris Geryon* of Hübner. See Zool. 8407, 8696, 8732.
2. *Leucania Loreyi* of Duponchel. See Zool. 8407.
3. *Luperina Guenéei* of H. Doubleday, described at length, and the description copied into the 'Zoologist.' See Zool. 8916.
4. *Dianthœcia Barrettii* of H. Doubleday, described at length, and the description copied into the 'Zoologist.' See Zool. 8915.
5. *Catoptria conterminana* of Herrich-Schäffer, taken some years back both at Folkstone in Kent, and Stratford in Essex, but not previously recorded.
6. *Euchromia rufana* of Scopoli, a questionable species, taken by Mr. Hodgkinson in the Lake District.

A very interesting table of larvæ has been compiled with great care, and descriptions of the larvæ of *Oporabia filigrammaria* and *Cidaria sagittata* complete the paper ; both these descriptions have been copied into the 'Zoologist.' See Zool. 8913.

Mr. M'Lachlan's "Notes on British Trichoptera," like everything that emanates from that gentleman's pen, is well considered and carefully expressed. The additions to the English list of species are three in number, *viz.*,

Limnephilus nobilis of Kolenati.

Anabolia cœnosa of Curtis.

Hydropsyche ophthalmica of Rambur.

Limnephilus nobilis. "In the colourless ground of the anterior wings it resembles *L. flavicornis*, but it possesses a very distinct obliquely-placed fuscous pterostigma, internally gradually narrowing to a point ; the fenestrated spot is rather broad but very indistinct ; the apex is clouded with dark gray, with transparent irrorated spots ; the anterior wings are narrower than in either *L. flavicornis* or *L. Stigma*. In the form

of the appendices it differs greatly from any of our previously recorded species. In the male the upper margin of the last abdominal segment is produced into a broad flap, which is bent down, covered with short black scabrous bristles ; viewed from above, the upper margin has the appearance of being deeply and roundly excavated with a prominence on either side ; the superior appendages are very large and hollow, broadly and obtusely spoon-shaped, standing out almost at right angles from the body ; the inferior appendages are straight, truncated at the extremity, which is furnished with a tuft of long hairs ; the intermediate appendages are straight, testaceous in the basal half, but with a black somewhat mucronate apex. I have not yet seen the female."—P. 147.

Mr. Wormald has a male taken at Ruislip Reservoir, Middlesex, in September ; and I have two of the same sex taken in the same month near Warrington.

Anabolia cænosa is restored on the authority of a specimen taken by myself at Leominster.

Hydropsyche ophthalmica. "Antennæ whitish, annulated with gray ; palpi whitish ; eyes very large, intensely black ; the vertex clothed with hoary pubescence, almost quadrangular, slightly longer than broad ; thorax and abdomen brownish ; legs whitish, with a faint brownish tinge ; anterior wings very pale whitish gray, thickly reticulated and spotted with dark gray, forming conspicuous oblique streaks on the inner margin and on the costa towards the apex ; on the apical margin are several rather large spots of the pale ground colour ; hind wings pale gray."—P. 152.

In Mr. Scott's "Additions to the Fauna of Great Britain" the following species are added :—

Brachyceræa pallidicornis of Fieber.

Apocremnus simillimus of Kirschberg.

Oncotylus pilosus of Douglas and Scott.

Tinicephalus obsoletus of Douglas and Scott.

Atractotomus Pini of Douglas and Scott.

Orthotylus flavosparsus of Sahlberg.

O. Fieberi of Douglas and Scott.

Phytocoris longipennis, Flor.

Calocoris fornicatus of Douglas and Scott.

Leptopterna ferrugatus, Fall.

Ceraleptus squalidus, Costa.

Spathocera Dalmani, Schill.
Berytus commutatus of Fieber.
B. Signoreti of Fieber.
B. montivagus, Bremi.
B. pygmæus of Fieber.
Chilasis Typhæ of Mulsant.
Megalonotus pilicornis of Mulsant.
Drymus pilipes of Fieber.
Plinthicus bidentulus, H.-Schf.
Hydrometra aptera, Wimm.
Corixa atomaria of Illiger.
Monosynamma Scotti, *n. s.*
Allodapus rufescens of Burmeister.

Monosynamma Scotti is given as new to Science, with the following description :—

“ Black, clothed with a very short griseous-yellow pile. Head shining. Antennæ with the 1st, 2nd and 3rd joints black, the 4th pitchy ; base and tip of the 1st, and tip of the 2nd joints narrowly white. Rostrum with the 1st joint pitchy ; the 2nd and 3rd reddish yellow ; the 4th pitchy ; tip of the 3rd pitchy. Pronotum finely punctured posteriorly, and in paler specimens with a short reddish central line, not reaching to the hinder margin. Scutellum finely punctured, in paler specimens with a reddish spot at each of the basal angles. Elytra very finely shagreened. Base of the cuneus and the side next the cell in paler examples generally margined with white. Membrane pale pitchy brown ; nerves yellowish ; the posterior one margined internally, and a narrow triangular patch externally next the cuneus white. Legs : thighs pitchy black or red-brown, their tips reddish yellow ; on the under side of the middle pair, at the base, there is a short, longitudinal row of piceous spots ; on the hinder pair there are two rows, one of them along the centre, the other near the upper side, and on the upper side, a little before the apex, there are generally two black spots. Tibiae yellowish, piceous at the tips ; 2nd and 3rd pairs with large black spots, in each of which is set a short, stout, black hair. Tarsi yellowish, apical half of the second and the whole of the terminal joint and claws pitchy.

“ Length $1\frac{1}{2}$ line.

“ Taken at Deal by Mr. Douglas and myself, in August,

by sweeping amongst dwarf sallows, &c., in company with *Plagiognathus Bohemanni*, but not abundant. The specimens were sent to Dr. Fieber for determination, who returned them with the above name."—P. 160.

Mr. Stainton's "Observations on *Tineina*" may be termed notes and queries on species; they appear preparatory to future publication in the 'Natural History of the *Tineina*.'

EDWARD NEWMAN.

Description of the Larva of Angerona prunaria.—The female is not very fastidious in the selection of a food-plant for her offspring, but deposits her egg almost indifferently, in June and July, on *Prunus spinosus* (blackthorn), *Salix caprea* (sallow), and *Crataegus oxyacantha* (whitethorn); this last, however, is the best and most acceptable food in confinement: the egg is laid as early as June or July, and although it is hatched in ten or twelve days, does not make much progress during the autumn, but hibernates very small: in the spring it begins to feed voraciously as soon as the leaves have expanded, and is generally full-fed by the end of May: it then rests in a nearly straight posture, with the head and legs porrected: when annoyed it oscillates its body in a very persistent manner, not ceasing the motion for several minutes. Head small, flattened, not notched on the crown; antennal papillæ unusually long and porrected: body very long, very gradually attenuated from the 10th to the 2nd segment; 5th segment with two small dorsal warts placed transversely, and a transverse dorsal ridge behind them; 9th with a transverse dorsal protuberance terminating in four points, the outer of which on each side is long and curved slightly backwards, the inner is shorter and blunter; they are united in two pairs, each pair consisting of a long one and a short one; the 10th segment has two small dorsal warts placed transversely; the 11th has two still smaller dorsal warts, also placed transversely; and the 12th has two approximate dorsal warts, larger than those on the 10th, and much larger than those on the 11th: there are several smaller warts in addition to these I have described. The colour of the head is brown of two shades: body brown, clouded with a variety

of tints which appear to differ in different individuals ; belly paler, the region between the ventral and anal claspers greenish. When full-fed it makes itself a retreat by folding together and overlapping the edges of one or sometimes two leaves, and in the very compact structure thus made it changes to a smooth brown pupa, with rather elongated abdomen, which is scabrous at the extremity, and furnished with minute hooks, by which it is suspended. This pupa is without exception the most restless and active I have ever seen ; if the cocoon be opened it will continue to revolve, while suspended, with incredible velocity ; and if detached from its hold, it seems as though it were impossible for it to remain at rest ; it will roll from the middle of a dining-table to the edge and throw itself on the floor in less time than is occupied in recording the fact. The moths appear on the wing about the middle of June. I am indebted to Mr. Doubleday for this larva.—*Edward Newman.*

Description of the Larva of Amphydasis prodromaria.—The eggs are laid in March, on the bark of *Quercus Robur* (oak), the female inserting her long ovipositor into the crevices of the bark, and therein depositing the eggs : in confinement she is extremely reluctant to part with her eggs, unless provided with this their natural nidus, or some substance having a similar surface : the larvæ are hatched in May, and it is a curious problem how the minute larvæ can ascend to the region of leaves, then beginning to expand. They are usually full-fed in June, and then rest without any arch in the back, but owing to the numerous inequalities of the body the posture can scarcely be called straight ; the larva frequently attaches itself to the food-plant by the legs as well as the claspers ; by the latter it adheres very tightly. Head as wide as the anterior segments of the body, prone ; the face flat, with a depression in the middle ; the crown with a wide and very conspicuous, but not very deep notch : body irregularly covered with raised points, or shagreened, and having numerous wart-like protuberances ; these are always arranged in transverse pairs ; the two on the back of the 2nd segment rather distant ; one on each side of the 5th, 8th and 9th segments, the last large and very conspicuous ; two smaller ones on the back of the 12th segment ; and two approximate and indistinct ones on the ventral surface of the

7th, 8th and 9th segments, clasper-bearing segments in the Nocturni, and hence these warts are doubtless the homologues of claspers. Head reddish brown: body gray, marbled with various darker shades, the variety sometimes very pleasing, and greatly resembling cortical lichens; the summits of dorsal and lateral protuberances reddish brown; ventral surface nearly the same colour as the back, except between the ventral and anal claspers, where it is pale glaucous-green: legs reddish brown; ventral claspers gray; anal claspers and anal flap reddish brown. The full-fed larva descends the trunk of the oak in June, and, creeping into the earth, changes to a short obese pupa just beneath the surface, and remains in that state until the following February or March, when the moth appears. I am indebted to Mr. Wright for this larva, and for interesting information respecting its parent. — *Edward Newman.*

Description of the Larva of Anticlea rubidata.—The eggs are laid at the end of June or beginning of July, on *Galium Mollugo* and other species of the same genus; they are hatched in ten or twelve days. The larvæ are full-fed in August, and then rest in nearly a straight position. Head semiporrect, of almost exactly the same width as the body: body of uniform thickness throughout and cylindrical. Colour of the head smoky brown, with a brown V-shaped mark on the face pointing backwards, and several black dots and hairs. Body red-brown or gray, but in either case beautifully variegated; on the body is a median series of five lozenge-shaped or arrow-head markings, each having a dark centre, a pale disk, and a slightly darker margin; beyond and in continuation of these, and extending from the 9th segment to the anal flap, is a medio-dorsal black stripe; the entire back may be described as having five longitudinal stripes; of these the medio-dorsal passes through and partly comprises the arrow-shaped markings and the black stripe already described: the remaining stripes are somewhat sinuous, of a red-brown colour, and bordered on each side by black dots; the legs are paler, the claspers slightly darker. The larva in figure and marking follows the type of *Melanippe fluctuata*, M. *Galiata*, &c. It goes to the ground to change to a pupa, and forms a small earthen cocoon. I am indebted to Mr. Buckler for the opportunity of examining

his exquisite drawing of this larva, and to the Rev. J. Hellins for several particulars of its history. The perfect insect appears in June.—*Edward Newman.*

Description of the Larva of Anticlea badiata.—The egg is laid in March, on the bud or stem of *Rosa canina* (dog-rose), on the leaves of which the larva feeds. It is full-fed at the end of May, when it rests in a nearly straight posture, attached by the claspers only. Head semiporrect, slightly notched on the crown, slightly narrower than the body: body of uniform size throughout, slightly depressed, and entirely without humps. At first all the larvae are green; afterwards they vary slightly. Colour of the head orange, with a large black spot on each side just above the ocelli: dorsal area of the body green, sometimes exquisitely shaded, more especially towards the sides, with purple; the 2nd segment has a minute medio-dorsal pale line, on each side of which are four white dots arranged in a square, and below these on each side are two other white dots placed transversely; the 3rd and 4th segments have each a transverse series of six white spots on the back, and two placed longitudinally on each side; the 5th, 6th, 7th, 8th, 9th, 10th, 11th and 12th segments have each four dorsal white dots arranged nearly in a square; the 13th segment has a transverse series of six similar dots, and every segment has a lateral white dot at the junction of the dorsal and ventral area; the anal flap is rounded and dark purple-brown; the sides of the 2nd, 3rd and 4th segments are reddish brown; the sides and ventral surface of the other segments are dingy white; the spiracles intensely black; the legs green; the ventral claspers pale green, with an intensely dark purple-brown blotch on the outside; the anal claspers dingy, with a similar blotch. Descends to the ground and changes to a pupa on the surface of the earth in an earthen cocoon. The moth does not appear until the following March. Described from Mr. Buckler's exquisite drawing.—*Id.*

Mr. Stainton has issued an Eighth Volume of the 'Natural History of the Tineina,' with life-histories of 15 species of *Gracilaria*, and 9 species of *Ornix*, of which one is new.

The volume contains 312 pp. letter-press, and 8 coloured Plates. Price 12s. 6d.

The Trustees of the British Museum have printed the 29th Part of the 'Catalogue of Lepidoptera,' by Mr. Walker; it is confined exclusively to Tineina, and contains descriptions of numerous extra-European species; it contains 260 pp. letter-press. Price 3s. 6d.

The Linnean Society has just issued a new Part of its printed 'Proceedings,' containing 144 pp. letter-press and two Plates. Price 3s. It contains two entomological papers, bearing the titles which follow:—

1. Catalogue of the Heterocerous Lepidopterous Insects collected at Sarawak, in Borneo, by A. R. Wallace, Esq.; with Descriptions of New Species, by Francis Walker, Esq., F.L.S.
2. Catalogue of the Dipterous Insects collected at Waigiou, Mysol, and North Ceram, by A. R. Wallace, Esq.; with Descriptions of New Species, by Francis Walker, Esq., F.L.S.

Form of Cells.—At the April Meeting of the Entomological Society a very lengthened discussion took place on the hexahedral form of the cells in a honeycomb; Mr. Smith, the late President, thinking that the form exhibited design on the part of the builders; Mr. Waterhouse, Mr. Newman and others thinking the figure a necessary consequence of crowded contact: the arguments on both sides will be published.

Polymorphism.—Mr. A. R. Wallace exhibited varieties of extra-European butterflies, proving the existence of a phenomenon which he calls polymorphism. To me it appears that Mr. Wallace has not studied the departures from normal colour which occur in the Lepidoptera of our own island, or he would neither have laid such stress on colour, nor would he have appealed to the imperfectly-known fauna of distant lands to establish his views. Such a phenomenon, if it exist, would be readily marked at home, and without any risk of error in the facts; whereas Mr. Wallace found himself compelled to *assume* that C and D were females of A, and then to build his hypothesis on the assumption.

ADVERTISEMENTS.

The Insect Hunter's Companion.

By the REV. JOSEPH GREENE, M.A.

A second large Edition of the 'Insect Hunters' is now rapidly selling, and, from the number of letters I receive, I am ready to conclude that *every* purchaser writes to ask me some questions about catching, or killing, or preserving insects, or whether there is not some work describing the various processes. The following questions have been asked me times out of number:—Where to find moths and butterflies; how to catch them; how to bring them home without injury; how to kill them; how to set them; how to find the caterpillars; how to manage them; how to feed them; how to breed the perfect insects; where to find chrysalises; what to do with them; how to keep mites and mould out of cabinets; how to cure grease; how to relax insects when they have become stiff; how to arrange them in cabinets; what wood to use for cabinets; and a hundred similar questions. Replying to these questions has taken up more time than I can possibly afford, and there has hitherto been no cheap handy-book that will at all meet the case. I have often been compelled to refer to that portion of my 'Familiar Introduction' which treats expressly on these subjects, and to say, with a late celebrated physician, "You *must* read my book:" this I have always done reluctantly, because I have no desire to induce a beginner to lay out twelve shillings on a book, three-fourths of which he will not read until, by collecting and studying insects, he has acquired a desire to know more about them. Then, and not till then, will he appreciate all that I have written of their anatomy, history and classification. At first all that he requires is sound and simple practical advice on the subjects above mentioned, and it is to supply this want that Mr. Greene has written this little book, with the desire to impart to the juvenile student the knowledge and the experience which he has been so many years assiduously and patiently acquiring.

Price 1s. 6d., post free.

Edward Newman, 9, Devonshire Street, Bishopsgate.

Synonymic List of British Butterflies and Moths.

By HENRY DOUBLEDAY, Esq.

This is the only complete List of British Lepidopterous Insects. It contains the names and synonyms of every Butterfly and Moth discovered in Great Britain up to the date of publication. The arrangement is founded on that of M. Guenée, the *Facilis Princeps* of Lepidopterists. The great object in printing this most complete and laborious work is to establish a uniform nomenclature, the diversity hitherto existing, both in names and arrangement, being a source of confusion and perplexity to all beginners. Not only is Mr. Doubleday's own collection (the normal collection of British Lepidoptera) arranged and named in accordance with this List, but so also is every important collection with which I am acquainted throughout the country.

“With regard to arrangement and nomenclature of Butterflies and Moths, I believe that the vast majority of collectors adopt both as contained in Mr. Doubleday's ‘Synonymic List.’ This work is a monument of patient industry and laborious perseverance: no collector should be without it.”
—*Rev. Joseph Greene's ‘Insect Hunter's Companion,’ p. 148.*

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THE ENTOMOLOGIST.

No. 2.]

JUNE, MDCCCLXIV.

[PRICE 6D.

Analytical Notice of 'The Natural History of the Ti-neina,' Vol. viii. (containing Gracilaria, Part i., and Nepticula, Part ii.) By H. T. STANTON, assisted by PROFESSOR ZELLER, J. W. DOUGLAS, and PROFESSOR FREY. London: John Van Voorst, 1864. 312 pp. letter-press, 8 coloured Plates. Price 12s. 6d.

“THIS is one of the very few works which began well, and which have nevertheless improved as they proceeded.” Thus I began my notice of Vol. vii. (Zool. 8225), and thus I begin my notice of Vol. viii: it is equally true of both. We are informed that some of the figures of larvæ in this volume are from the pencil of Miss Wing, the sister of that Mr. Wing whose services were so early lost to Science, and whose loss was so universally regretted by those who knew him. There is an entomological truthfulness about Miss Wing’s representations of larvæ that I have rarely seen equalled, never surpassed: indeed the whole of the illustrations, whether by Miss Wing, Mr. Thomas Scott, Mr. Buckler, or Mr. Robinson, are alike creditable to the several artists, and valuable to the entomological student. A good description, it has been said, supersedes the necessity of plates; but the naturalist will most willingly admit how great an assistance are plates like these.

The species of Gracilaria described are fifteen in number, and of Ornix nine: out of these twenty-four only one is new to Science, and that one not hitherto found in Britain, a circumstance which relieves me of the task of transferring the description to the pages of the ‘Entomologist:’ the previously described species are Gracilaria stigmatella, G. Swederella, G. semifascia, G. elongella, G. syringella, G. hemidactylella, G. tringipennella, G. limosella, G. Kollariella, G. auroguttella, G. omissella, G. phasianipennella, G. Ononidis, G. pavoniella, G. Imperialella, Ornix guttea, O. torquillella, O.

Scoticella, *O. Betulæ*, *O. Loganella*, *O. avellanella*, *O. anglicella* and *O. fagivora*. The new species is *O. petiolella*, discovered at Frankfort, in 1858, by Herr Anton Schmid, and not hitherto found elsewhere.

I select for extract the life-history of *Gracilaria syringella*, not on account of its novelty, but because the ravages of this insect are so familiar and so annoying to the gardener, and to every lover of a neat and tidy garden: — “The eggs are laid in little clusters on the leaves of the lilac, and the young larvæ commence operations by mining a little greenish gray blotch on the upper surface of the leaf; in this blotch we generally find from four to ten larvæ feeding together; they are then very small and almost transparent; as they increase in size they mine a larger portion of the leaf, which becomes brown and much distorted, and eventually the larvæ come out from between the cuticles and feed on the extreme surface of the leaves, which they roll up laterally; sometimes a leaf already blotched by the mining larvæ is thus rolled up. When the larvæ are quite full-fed they seek some convenient nook in which to spin their opaque whitish cocoons. There appear to be two broods of this insect in the year, the larvæ feeding in June and again in August and September, and the perfect insects from the first brood appearing in July and those from the second in the May of the following year. The insect is excessively abundant, at times completely disfiguring the lilac-bushes by turning the leaves brown and rolling them up. Though most frequently observed on the lilac, it feeds also on the ash and privet.”

My own experience of this little pest is that there is a constant succession of individuals throughout the summer, and, instead of confining the number of broods to two, I should incline to extend them to half a dozen. Its life-history was first given by Réaumur, and since his time Haworth, Treitschke, Duponchel and many others have severally described it as a novelty, and have given it a new name accordingly, a practice almost universal among Entomologists.

I am truly glad to see Mr. Stainton devoting himself with such energy to the study and publication of these life-histories of insects,—a subject formerly so admirably handled by De Geer and Réaumur, but one which, until within a few years, has been so utterly neglected in this country: indeed the

expression "neglect" is not sufficiently strong: it has been repeatedly discouraged and condemned as useless. A change for the better is evidently coming over us, and nothing can possibly tend to foster this taste for the study of the living insect so effectually as the publication of such splendid volumes as that now before me.

EDWARD NEWMAN.

Description of the Larva of Ephyra trilinearia. — I am unable to speak with positive certainty as to the single or double-broodedness of the several British species of the genus *Ephyra*. My friend H. Doubleday considers all of them (with the exception of *G. orbicularia*, with the life-history of which species he is unacquainted) to be partially double-brooded, and that the autumnal specimens are smaller, deeper coloured and more strongly marked than the vernal ones. It is quite certain that out of a single brood of *E. punctaria*, *E. pendularia* and *E. omicronaria* the great part may appear in July and the remainder in the May following. Those who arrive at conclusions hastily would doubtless assert that these spring examples were the children, instead of the brothers and sisters, of the July specimens. I will not, however, venture to theorize on the subject further than by reminding the reader that I have elsewhere published numerous instances of this development of the same brood at two seasons, the specimens disclosed in the autumn being almost invariably infertile. The eggs of *E. trilinearia* are laid on the leaves of *Fagus sylvaticus* (the beech), and the young larva is hatched and begins to feed in about a fortnight; the great majority are full-fed in August and September, when they rest in an arched posture, the anterior extremity raised; the head, anterior segments and legs closely pressed together and forming a conspicuous mass; the whole of the body as far as the ventral claspers is slowly and regularly oscillated when the larva suffers the slightest annoyance. The head is much wider than the body, prone, and notched on the crown: the body narrow, slightly depressed, transversely wrinkled, and having a dilated skinfold on each side; the anal claspers spread at right angles with the 13th segment; on all parts of the body are extremely minute scattered warts,

each of which emits a slender hair. Head opaque, clear sienna-brown, the face paler, the cheeks somewhat reticulated, the labrum and antennal papillæ white: body clear sienna-brown, with two closely approximate very narrow umber-brown medio-dorsal stripes: the skinfold on each side is decorated with five or six long yellow spots; these are on the 5th, 6th, 7th, 8th, 9th, and sometimes the 10th segment; they are bordered above and below by deeper brown, which makes them more conspicuous; sometimes the yellow is diffused and extends the entire length of the body: belly pearly gray, with a tinge of pink; legs and claspers pinkish gray, the latter with a pale yellowish exterior line. It spins a few silken threads, forming a slight web or coating on the surface of a leaf, and attaches itself thereto by the anal claspers; it then spins a stronger thread, forming a girdle or belt, and, supported by this, it changes to a pupa much in the same way as the larvæ of the genus *Pieris* among butterflies: the pupa is square and truncated at the anterior extremity, looking as though it had been cut in two; the angles produced into two small projecting points; very pointed at the posterior extremity, and furnished at the apex with eight curved hooks, which spread right and left, and by which it is attached to the silken web on the leaf: its colour is pale brown and semitransparent, the back clothed with dark brown, the projecting points on each side the head, and a line extending from them along the outside of the wing-cases white, the outer part of the wing-cases dark brown: the wing-rays are so strongly pronounced as to give the wing-cases the appearance of being longitudinally striated. These larvæ and pupæ are commonly to be found on the dwarf pollard beeches which retain their leaves throughout the winter, the margins of the leaf generally curling over and concealing the pupa; when the leaf falls in the spring, the pupa is of course conveyed gently to the ground, and the perfect insect makes its appearance at the end of April or beginning of May, and from that time to August there is an almost constant succession. *Note.*—In a beautiful variety, of which Mr. Wright took two examples at Epping, the head was reddish brown, the face slightly paler; the body apple-green, with numerous irregular whitish markings, which formed longitudinal but interrupted waved lines throughout the body; the lateral

skinfold was also white ; the spiracles white, with pink margins ; legs extremely pale, almost white ; ventral claspers green, with a rose-coloured blotch on the outside, and a spot of the same colour just above it on the body ; anal flap and claspers green, tinged with rose-colour. Pupa exactly similar in character to that already described, but of the most exquisitely delicate apple-green variegated with small markings of pure white.—*Edward Newman.*

Description of the Larva of Anticlea derivata.—The eggs are laid in March or April, on the buds or stems of *Rosa canina* (dog-rose), on the leaves of which species the larva feeds ; the larvæ are full-fed in May. Rests in a straight or but slightly bent position. Head semiporrect, scarcely so broad as the body : body cylindrical, but slightly narrowed anteriorly ; the skin appears tight, and has but little appearance of wrinkles or skinfolds. Colour of the head light red, tinged with green in the middle of the face : body delicately green, with red blotches as described below ; the first originates immediately behind the head, and is there of the same breadth, but it narrows to a point on the back of the 5th segment ; others—three, four or even five in number—form a longitudinal medio-dorsal series, and others sometimes appear placed transversely on the 10th and 13th segments : the legs are pinky red ; the claspers green, with a red blotch on the outer side. Descends the rose-bush and changes to a pupa in the earth, and the moth does not appear until the following April. I am indebted to the Rev. J. Hellins for a sight of Mr. Buckler's beautiful drawing of this insect.—*Id.*

Description of the Larva of Coremia unidentaria.—The egg is laid on *Galium verum* (ladies' bedstraw), in July, and the larva feeds freely on that plant, as well as on *Asperula odorata* (sweet woodruff) ; my specimens were full-fed on the 30th of August, and then rested in a posture slightly bent, and with the head usually porrected, but bending downwards in a prone position on the slightest touch. Head flat, exactly of the same width as the 2nd segment, but not so wide as the following : body slightly depressed, without excrescences, but having a manifest lateral skinfold and numerous minute warts, each of which emits a bristle ; these warts and bristles are eight or ten on each segment. Colour of the

head pale testaceous-brown or putty-colour, with dark brown spots, some of which group together and form two longitudinal stripes, one on each cheek: body pale testaceous-brown or putty-coloured, with numerous dark brown dots, which, associated, form lozenges on the back, and longitudinal rivulet markings on the sides; the perfect lozenges on the back are four in number, and each has a quadrate black spot in the centre; there are two principal lateral rivulet stripes, both of them double; the lower of these comprises the black spiracles, and terminates in the anal claspers; a long black spot on each side runs into the ventral claspers; the double rivulet markings of the ventral surface are five in number; of these the median one is the narrowest and the palest in colour, and its component parts most approximate; the upper double stripe on each side is situated just below the skinfold; it is very interrupted and indistinct, and contains five quadrate black spots, namely, on the 5th, 6th, 7th, 8th and 9th segments; the warts are pale, and the bristles they emit are black with white tips. I am indebted to Mr. Vaughan, of Bristol, for specimens of this larvæ; they changed to dark brown glabrous pupæ in a slight web among dry remains of the food-plant on the surface of the earth. The moths emerged from the 17th to the 30th of April. Guenée says of this species that although it does not differ essentially from *C. ferrugata*, except in colour, it is so constant that he is almost tempted to regard it as a distinct species; but that Sepp has figured it as coming from the same larva. I have positively verified the larva described above as being that of *C. unidentaria*; not that I doubted Mr. Vaughan's information, but that I might have the gratification of confirming him. I extremely regret to say that I am still unacquainted with the larva of the common *Coremia ferrugata*. It appears to me, however, that on the Continent our view of the names of these species, or supposed species, is not exactly understood; for Lederer has sent specimens of *unidentaria* to Mr. Doubleday, some with a red and some with a black central band, evidently supposing them our *unidentaria* and *ferrugata*; and also our *ferrugata* ticketed *var. spadicearia*, *Bork.* Now the colour of the central band in *unidentaria* is very apt to exhibit a ferruginous tinge, so that colour taken by itself is insufficient to distinguish them. I am glad to have had

the opportunity of proving, through the kindness of Mr. Vaughan, that *C. unidentaria* comes true from the egg.—*Edward Newman.*

Messrs. J. E. Wheatley & Co., of Huddersfield, have issued the first number of a new periodical, 'The Naturalist.' It contains 16 pages 8vo, and is charged Threepence. There is but little Entomology in this first number, but we may hope for more. Mr. James Varley has captured or bred eleven very familiar Lepidoptera: Mr. G. R. Parke took several specimens of *Eupithecia nanata* on the 21st of April. This number is chiefly devoted to Introductory Addresses and Botany.

Mr. Ker, of Liverpool, has issued Nos. 13 and 14 of the 'Naturalist's Scrap-Book.' Each contains 16 8vo pp. lithographed. In No. 13 there are but two papers on Entomology—the occurrence of *Sesia Tipuliformis* in a kitchen on the 19th of June, 1862, recorded by Mr. Edward Gleave; and "Entomology for Beginners, or what may be done in April," by Mr. C. S. Gregson: this Number devotes a large space (6 pages) to an Introductory Address. No. 14 contains an interesting paper by Mr. Harrison, on *Geophilus electricus*, which I shall reprint; it shows that the numerous records we have had of the luminous properties of *Carabidæ* and *Staphilinidæ* may reasonably be traced to the fact of these Coleoptera occasionally indulging in a phosphorescent repast.

'Young England' for May contains an interesting page on Entomology, under the management of Messrs. T. Lovell Keays and Howard Vaughan: the information is contained chiefly under "Notices to Correspondents," and will scarcely present any novelty to the readers of the 'Entomologist.' They are in this way:—"There are three Kittens, all about the same size; *viz.*, *D. furcula*, *D. bifida* and *D. bicuspis*. The latter is very rare." "Large moths generally lay larger eggs than smaller ones, but of course there are exceptions." I shall probably find more novelty another month.

The 'Corresponding Naturalist's Circular,' projected more especially, as it appeared, for Entomological Notices, has been amalgamated with 'Young England.' I should have thought there would have been an abundant field for both, more especially as the 'Circular' was published at Birmingham, and served as an organ for the midland counties. May we hope for a revival?

Insects in Amber and Animé.—At the Meeting of the Entomological Society held on the 4th of April, Mr. Butler exhibited a number of insects enclosed in amber and animé; he believed that all the species differed from those described by the Rev. F. W. Hope in the 1st and 2nd volumes of the Society's 'Transactions.' One of the amber insects, apparently a species of *Myrmica*, was noticeable as having a bubble of air moving in an aqueous medium within its abdomen. It is scarcely necessary to state that both amber and animé are held to be exudations from trees—amber from certain extinct species of Rosaceæ, animé from still existing conifers: on this ground amber is called a gum, animé a resin.

Luminosity of the Lanthorn Fly.—Perhaps there is no subject on which the opinion of reflecting Entomologists has undergone so great a change as on this. In my boyhood I should no more have presumed to doubt that the lanthorn flies flew about of an evening, carrying before them a vast receptacle of light to guide them on their way, than I should have thought of calling in question the luminous property of the glowworms which I used to bring home from the hedge-banks of Surrey, penned down, I am sorry to say, under the ribbon that went round my hat. Yet even then wiser heads than mine began to doubt the torch-bearing propensities of the Fulgoridæ; for do we not find, in that exquisite chapter on luminous insects in Kirby and Spence, abundant symptoms of misgiving, as early as 1815! Take for instance the following passages:—"A genus called *Fulgora* includes several species which are *supposed to emit*," &c. Again, after mentioning the names of our two most distinguished luminaries, the author tells us they "are *supposed to have* the material which diffuses their light included in a subtrans-

parent projection of the head." In a foot-note we find that Richard and Sieber, the most experienced of all Brazilian Entomologists, deny the existence of any luminous property in *Fulgora laternaria*. Twenty years afterwards I collected all the evidence within my reach on both sides of the question, and published it in the 3rd volume of the 'Entomological Magazine.' It is rather too voluminous to quote, but the amount of evidence in support of the luminosity of *Fulgora* proved to be very, very small indeed. Still there were many who delighted in retaining a traditional belief in the lanthorn fly of South America, a belief, however, doomed to be rudely shaken by a thirty years' resident in their very midst. After discussing the possible uses of the lanthorn, a question rather beside my present purpose, this writer proceeds:—"I cannot tell why it is called the 'lanthorn fly,' for it gives no light. I speak from my own experience during a residence of more than thirty years in New Granada, and from the information of the men who catch them."—*Robert J. Treffry*, in *Zool.* for 1863, p. 8656. This really appears to me conclusive, and the question I should have supposed set at rest; but Mr. Smith, the late talented President of the Entomological Society, in his Annual Address, revives the question, and boldly takes up the cause of the deposed lanthorn fly as follows:—

"In all branches of Natural History there are certain species indelibly connected with some cherished history of childhood,—some that no doubt have been so united for centuries past: these we care not to separate, even though stubborn facts would ruthlessly dispel our long-dreamt dream; thus the robin covered the Children of the Wood 'painfully with leaves; ' the wolf glared on Little Red Riding Hood; and amongst insects, does not the glowworm trim her lover's lamp, and does not the lanthorn fly, like a wandering star, flit before us in the forests of South America? Any matter-of-fact person who ventures to explode any of our popular beliefs meets with a cold reception; therefore, on looking over the July number of the 'Zoologist' (Zool. 8656), and meeting with an article headed 'The Lanthorn of *Fulgora laternaria*', in which Mr. Robert John Treffry, of New Granada, says, 'I cannot tell why it is called the lanthorn fly, for it gives no light,' in being able to answer his question by replying, 'Because other people have been

more fortunate than yourself, and have seen its beautiful luminosity.' Had I possessed no further knowledge of the subject than Mr. Treffry, what had I thought of the following :—‘ The so-called lanthorn appears to answer as a drum to reverberate its hum, and as a “ buffer ” to protect it, when in its rapid flight it strikes against an obstacle, as it is elastic and horny. I think its use is what I have stated—an instrument of sound and a “ buffer.” ’ I am expected to believe that the lamp of the winged torch-bearer is no more than this. No ! do not believe in any such degrading fact. I will bring evidence before you of such weight as to settle the question of the luminosity of the lanthorn fly, and restore it to its legitimate position in your minds as a light-bearing insect. At a Meeting of the Royal Physical Society of Edinburgh, held November 24th, 1858, a specimen of the lanthorn fly (*Fulgora laternaria*) was exhibited by Dr. J. A. Smith, who observed that it was still an undecided question amongst naturalists whether these flies were really at any time luminous or not. It was therefore of importance that the undoubted evidence of eye-witnesses should be produced. Mr. Banks, of Prestonpans, who forwarded the *Fulgora* to Dr. Smith, was therefore at once requested to obtain further information from his correspondents on that particular point. On the 27th of April, 1859, at a subsequent Meeting of the same Society, Mr. James Banks communicated, through Dr. Smith, the reply of his correspondent at Honduras to the question raised at the Society. Mr. Banks had received various letters upon the subject of the luminosity of *Fulgora laternaria* : they all bore testimony to the truth of the statement of this fly really emitting a light. One from Mr. Alexander Henderson, of Belize, furnished the following details :—‘ In answer to the question, “ Is it really luminous ? ” certainly the fly possesses light, and therefore emits it. The light is evidently under control, for it increases and diminishes at pleasure. When the wings are closed there are three luminous spots on each side of the head-part, on the upper part (like a cat’s staring eyes) of a beautiful sulphur-coloured light, in rays that spread over the room. The third luminous spot is seen when the fly is on its back, half-way down the abdominal part of the insect. When quiescent the illumination is least ; in daylight the upper spots are nearly

white, emitting no light whatever (its lively time is at twilight). Immediately on being agitated, or moving about, the spots become sulphur-colour, and radiate forth streams of light, clearly seen, although the sun be shining into the room, as it now does at the moment I write, with the creature in the glass tumbler before me. We shut out the light, and to test the power of the fly I took up a book and read two verses of the 109th Psalm. Mr. Robert Gregg also took up a book and read by its light. I hope this will satisfy all that the lanthorn fly is luminous.' In the 'History of the West Indies,' by R. M. Martin, 1837, vol. ii. p. 104, being vol. v. of the 'British Colonial Library,' is a statement fully corroborating the truth of the lanthorn fly being luminous. The question must, I think, now be considered as settled; and this, I hope, wipes away the last stain cast upon the fair fame of Madame Merian: romance, as it has hitherto been considered by many, becomes plain reality."—*President's Anniversary Address to Entomological Society, January 25, 1864.*

To this I appended a note, which Mr. Smith cites in the communication which follows, forming part of the 'Proceedings of the Entomological Society' for April 4, 1864:—

"Mr. Frederick Smith—after remarking that his attention had been called to a note appended by the Editor of the 'Zoologist' (Zool. 8975) to an extract from his Address to the Society on the 25th of January last, the passage extracted being that relating to the luminosity of Fulgora, and the note being in the following words, 'I believe the Honduras fire-fly with intermittent light is an Elater; if so, the Fulgora question remains *in statu quo*,'—said that he had since had supplied the further evidence of another eyewitness of the luminosity of the lanthorn fly. Mr. James Smith, of 23, Wilton Row, Queen's Road, Dalston; made the following statement:—'The Fulgora candelaria is found most plentifully between the months of May and August; it is occasionally seen in the winter, but these, I think, are hibernated specimens; it is then not luminous, and very much faded. In the summer it has a pale blue or green light at the end of the snout, which may be considerably augmented by a gentle pressure of the insect; it is brightest in the female. It is common throughout all China, and called the "Star of Eve," "Eye of Confucius," "Spark-fly," and the same

insect is called, in the winter, the "Flying Elephant," perhaps in reference to its long proboscis. When the insect is settled the light is more luminous than when it is flying, and when the male and female have mated it is wholly extinguished. The male, I believe, does not survive many hours, as I never caught one in the summer which was not luminous. They fly in swarms, and I have repeatedly taken two or three species in the same swarm. They are most plentiful in gardens, though they are found everywhere. The Chinese ladies catch them and imprison them in a fine gauze net, and wear them in their hair.'

"Mr. W. F. Evans said that Sir John Barrow's experience was in favour of the luminosity of *Fulgora*.

"Mr. Newman remarked that his note on Mr. F. Smith's former statement was confined to that part which referred to the Honduras fire-fly, *i. e.* to *Fulgora laternaria*, not *F. candelaria*. Nothing that had been adduced that evening had any bearing upon the luminosity of *F. laternaria*.

"Mr. Bates said that *Fulgora laternaria* was pretty common on the Upper Amazons; he had been aware of Madame Merian's statement, and had observed the insect closely; but he had never found it luminous, and, what was stronger than the negative evidence of any single observer, there was no rumour or idea existing amongst the natives to the effect that it was luminous. The natives were well acquainted with the insect, which was the subject of fables current amongst them; for instance, a tale was told of one of these insects having emerged from the forest and attacked a boat's crew of nine persons, eight of whom were killed by the poisonous creature, and the pilot only escaped by jumping into the river. But though the fly was thus reputed to be venomous; there was no story current of its being luminous. Mr. Bates himself was of opinion that *Fulgora laternaria* was not luminous, and (strange as it might seem) that the Honduras correspondent on whose statement Mr. F. Smith relied had attributed to the *Fulgora* what, in fact, was the luminosity of a *Pyrophorus*."

Polymorphism.—At the May Meeting of the Entomological Society, Mr. A. R. Wallace again introduced the subject of Polymorphism to the notice of the members present,

exhibiting specimens of Papilionidæ to illustrate his views: on this occasion he relied chiefly on altered form, as, on the former occasion, on altered colour: great discrepancy was observable in the outline of the costa, the normal form being a gradual curve from the base to the distal extremity, and the aberrant form exhibiting a much more arcuate outline, and in some instances a very decided bend at about a third of the length from the base. Mr. Wallace, in a speech fraught with the most interesting observations, proposed to account for the prevalence of this highly arcuate and bent outline, on the Darwinian hypothesis that, in the insular localities where such forms occurred, the individuals possessing the normal form had been destroyed by their natural enemies, leaving only those which possessed some peculiarity, as rapidity of flight, obscurity of colour, pungency of scent, &c., to protect them: in the instance of the butterflies he exhibited he thought that the abnormal outline of the costa might give them greater power and rapidity of flight. The President asked whether Mr. Wallace had ever seen these butterflies pursued when on the wing, and was answered in the negative. Captain Cox and Mr. Newman contended that the contour of the wing, as pointed out by Mr. Wallace, was not by any means accompanied by rapidity of flight; but that the most rapidly flying insects usually possessed a straight costa; thus the Diptera were the most rapid of flyers, and among the Lepidoptera the Sphingidæ deserved the palm in this respect; and among the Sphingidæ the straight-winged genera, as *Macroglossa*, were much more rapid than such species as *Smerinthus Populi*, which was the slowest among Sphingidæ, although it possessed the most decidedly arched costa. Mr. Smith took the same view, and instanced the Hymenopteron, *Astata boops*, as a most rapid flyer with straight costa.

Hydrilla palustris.—At the May Meeting of the Entomological Society, Mr. Dunning (on behalf of Mr. R. S. Scholfield, who was present as a visitor) exhibited a specimen of *Hydrilla palustris*, captured by Mr. Scholfield in Quy Fen, Cambridgeshire; the specimen was a male, and was disturbed from grass on the afternoon of the 29th of May, 1862. This *Noctua* was introduced into the British list on the

authority of an example in the possession of Mr. Allis, taken some years ago near York; but the species was not included (or rather was given as a "reputed British species") in Mr. Doubleday's 'Synonymic List of British Lepidoptera' (ed. 1859).

Agamogenesis.—In my little pamphlet on 'Physiological Classification' I gave a number of instances in which female insects had produced fertile eggs, and even living young, without the possibility of having had previous access to males of the same species: these were all cited from works of the most eminent naturalists of the Continent, and are entirely trustworthy; but still there is something in all records that makes you think, if not say, "I should like to try that experiment myself." In my own instance this opportunity has been afforded. In one of my breeding-cages were placed three full-fed larvæ of *Nyssia pilosaria*; they soon became pupæ; and at the end of February and beginning of March three females emerged; they continued very quietly on the sides of the cage during the day, but at night amused themselves with busily perambulating some fallen and withered leaves, and with inserting their telescope-like ovipositors into every cranny and crevice they could find. Of course I supposed they were laying eggs, and still suppose so, but of this I cannot be sure. However, on Sunday, the 17th of April, I found the cage positively swarming with minute loopers, which, bearing in mind as I did the three female *pilosarias*, I concluded at once to be juveniles of that species. A fortnight has elapsed, and there is now no doubt on the subject: they have been feeding on birch, which, if it shared my feelings, was anxiously expecting the emergence of a brood of *Endromis versicolor*, certain twigs embossed with the eggs of that species having been deftly affixed to the twigs of birch provided for their sustenance. The *pilosarias*, now a fortnight old, are rather restless, wandering frequently off their food-plant, and reminding one forcibly of "Japhet in search of a father." Still the fact, as here narrated, is amply sufficient to prove that the union of the sexes, in this particular species, is not absolutely essential to the production of abundant and vigorous progeny: whether they arrive at maturity remains to be seen.—*Edward Newman.*

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THE ENTOMOLOGIST.

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JULY, MDCCCLXIV.

[PRICE 6D.

Analytical Notice of the 'Transactions of the Entomological Society of London.' Third Series. Vol. i. Part IX. With 58 pp. letter-press, besides General Index, &c.; and two Plates, one of them coloured. Price Six Shillings. April, 1864.

I AM sure that no member of the Entomological Society will be disposed to quarrel with me when I say that, however assiduous and however skilful may have been our previous Secretaries, and no one is more willing than I to yield to each the credit justly due, the *suum cuique*, still our present Secretary, Mr. Dunning, stands out in bold relief, when compared with his predecessors, as the Secretary *par excellence*, as the man who has been the first to raise our records to the dignity of Reports: this is no light or ill-considered praise: the value of a Report depends not exclusively on its accuracy, but equally on its intelligibility,—on the pruning out of all that is worthless in our circumlocutory discussions, and arranging and compressing the remainder into readable compass, without subtracting a tittle from their value. And this Mr. Dunning has accomplished; and now, for the first time since our existence as a Society, have our Proceedings assumed a form which really entitles them to the respect of the scientific world. I am the more anxious to record my opinion of Mr. Dunning's great services, on the very threshold of Notices which I trust may be continued through the brief remainder of my life, now unmistakeably falling into the "sere and yellow;" because, knowing, as I do know, that repeated asseveration confers no additional weight on statements of any kind, it is scarcely probable that I shall revert to this subject, however tempting.

The present Part of the 'Transactions' contains two substantive papers, thus intituled:—

1. On the European Species of the Genus *Cosmopteryx*.
By. H. T. Stainton, Esq., F.L.S., F.G.S.
2. On the Types of *Phryganidæ* described by Fabricius
from the Banksian Collection. By R. M'Lachlan,
Esq., F.L.S.

Also the following sundries :—

Journal of Proceedings. 36 pages, including the President's admirable Address at the Anniversary Meeting.
Explanation of the Plates.

Additions to the Library during 1862—63.

List of Members and Subscribers, March, 1864.

List of Errata.

Bye-Laws.

General Index.

In the present instance the plates have no connexion with the letter-press: they represent twelve species of Longicorn beetles, five of them coloured: these are—*Abryna eximia* of Newman, plate xxiv. fig. 1, var. *cuprea*; fig. 2, var. *viridis*; *Abryna Semperi* of Westwood, fig. 3; *Acronia perelegans* of Westwood, fig. 4; *Lamia ocellifera* of Westwood, fig. 5; *Abryna eximia* seen obliquely, fig. 6; *Abryna eximia*, var. *purpureo-nigricans*, plate xxv. fig. 1; *A. notha* of Newman, fig. 2; *A. cœnosa* of Newman, fig. 3; *A. fausta* of Newman, fig. 4; *A. Newmanni* of Westwood, fig. 5; *Zygocera pruinosa* of MacLeay, fig. 6; *Z. metallica* of Westwood, fig. 7.

Mr. Stainton's paper is a complete and rather painfully elaborate aggregation of all that has been written on the species of *Cosmopteryx*. The pith of the matter is contained in the concluding paragraphs, which I quote unaltered :—

“ I will now glance at the sum total of our present knowledge of the European species of the genus *Cosmopteryx*.

“ We have six species, viz. :—

“ One with ochreous anterior wings (*Lienigiella*), of which the larva is unknown and unsuspected.

“ One with brown anterior wings (*Scribaïella*), of which the larva is unknown and unsuspected.

“ Both these species have slender, longitudinal, silvery streaks in the basal portion of the wing; in *Lienigiella* the

margins of the central fascia, which is little yellower than the ochreous ground colour, are silvery ; in *Scribaïella*, which has the central fascia dark yellow, inclining to orange, not the rich reddish orange colour we see in the black species, the margins are pale golden, but the exterior margin is ruptured a little above the middle of the wing, and the orange-yellow colour protrudes through it.

“ And we have

“ Four species with black anterior wings, namely—*Eximia*, with the base of the wing black, and the apical streak interrupted, of which the pretty red marbled larva mines the leaves of the hop ; *Schmidiella*, with the base of the wing black, and the apical streak uninterrupted, of which the pretty red marbled larva mines the leaves of *Vicia Sepium* ; *Orichalcea*, with the base of the wing brassy, and the apical streak interrupted, of which the larva is suspected to mine in the leaves of *Festuca arundinacea* ; and *Druryella*, with the base of the wing brassy, and the apical streak entire, of which the larva mines the leaves of *Hierochloë australis*. In all these species the margins of the central fascia, which are golden in the male, have a rosy or violet tinge in the female ; and though all have the tips of the antennæ white, there is this difference, that *Druryella* and *Orichalcea* have two white rings before the white tips ; and in *Schmidiella* and *Eximia* there is only one white ring.

“ The synonymy of the species will be as follows :—

- “ 1. *Lienigiella*. Zeller, *Isis*, 1846, p. 298 ; Stainton, *Zoologist*, 1850, p. 2753 ; Id. *Ins. Brit. Lep. Tin.* p. 229 ; Herrich-Schäffer, *Schmett. v. Europa*, v. p. 284.
- “ 2. *Scribaïella*. (Heyden), Zeller, *Ent. Zeit.* 1850, p. 197 ; Herrich-Schäffer, *Schmett. v. Europa*, v. p. 284, fig. 998.
- “ 3. *Eximia*. Haworth, *Lep. Brit.* p. 532 ; Stephens, *Ilustr. Haust.* iv. p. 273 ; Stainton, *Manual*, ii. p. 395.
- “ 4. *Drurella*. Stainton, *Ins. Brit. Lep. Tin.* p. 229 ; Frey, *Tin. u. Pteroph. der Schweiz*, p. 259 ; *Anm. Fologne*, *Ann. de la Soc. Entom. Belge*. vi. p. 162, pl. ii. fig. 1. *Druryella*, Herrich-Schäffer, *Schmett. v. Europa*, v. p. 284, fig. 999.
- “ 4. *Schmidiella*. Frey, *Tineen. u. Pteroph. der Schweiz*,

p. 257. (Alluded to also by Herrich-Schäffer under *Druryella*).
 "5. *Orichalcea*. Stainton, Ent. Annual, 1861, p. 90.
 "6. *Druryella*. Zeller, Ent. Zeit. 1858, p. 196; Frey, Tineen u. Pteroph. der Schweiz, p. 258, Ann. (Alluded to also by Herrich-Schäffer under *Scribaïella*)."

Mr. M'Lachlan's paper on the Fabrician types of *Phryganidæ* is, as usual with that accomplished Entomologist, clear and satisfactory.

Phryganea irrorata of Fabricius, Sp. Ins. i. p. 389, 9 = *Limnephilus intercisis* of Walker, Brit. Mus. Cat. Neurop. Pt. I. p. 30, 41.

Phryganea signata of Fabricius, Sp. Ins. i. p. 389, 7 = *Brachycentrus fuliginosus* of Walker, Brit. Mus. Cat. Pt. I. p. 88, 7; or *B. incanus* of Hagen, Neuropt. North Amer. p. 272, 2; but as Dr. Hagen has since expressed an opinion that these two supposed species are identical, it follows that both names must fall, and that of *B. signatus* be substituted.

Phryganea notata of Fabricius, Sp. Ins. i. p. 390, 12, apparently = *Dipseudopsis capensis* of Walker; but as the Fabrician example is from North America, and as Mr. Walker's is supposed to be from the Cape of Good Hope, some doubt must continue to hang over the inquiry.

There is really a great deal of interest attaching to this most neglected of all families of insects, and I should rejoice to find that Mr. M'Lachlan's labours produced some better fruit than the bare inference that they entitle him to credit, which every one will admit: I could wish to see others embarking in the study; but alas! since my collecting powers have ceased, Mr. M'Lachlan and his colleagues, Mr. Wormald and Mr. Parfitt, seem to be the only students of these aquatic moths.

EDWARD NEWMAN.

Description of the Larva of Larentia cæsiata.—The egg is laid on the slender stalks of *Vaccinium Vitis-Idæa* (the wort, whortleberry or bilberry), in July and August, and the young larva hibernates on the surface of the earth, at the roots of the food-plant: it begins to feed again in April of the ensuing year, and is full-fed by the second week in May:

it then rests on the stalk of its food-plant by day, generally with the head downwards, and in a perfectly straight position; on the approach of evening it turns round, reascends the stalk, and feeds on the leaves during the night. Head prone, scarcely so wide as the 2nd segment, and without any manifest notch on the crown: body of uniform substance throughout, and having a perceptible lateral skinfold along the region of the spiracles; each segment has a few small warts, and each wart emits a short and feeble bristle. Colour of the head umber-brown, in some specimens inclining to red: body velvety red-brown, or velvety olive-green; in both varieties there is a series of medio-dorsal V-shaped markings of great beauty; these occur on the 5th, 6th, 7th, 8th, 9th, 10th and 11th segments; the apex of each mark points towards the head; its sides are not quite closed at this point, but allow the passage of a fawn-coloured stripe which expands immediately after entering the area enclosed by the V, and is again restricted to a mere line, where it approaches the boundary of the segment; the remainder of the area enclosed by the V is of a lovely rose-colour; each side of the V is bordered with rich brown; anterior to each V, that is, adjoining the anterior margin of each segment, are four short parallel lines, paler in the brown variety, perfectly white in the green one; lateral skinfold in both varieties almost white, and thrown up in bold relief by contrast with the ground colour immediately adjoining it; belly of the prevalent ground colour; legs semitransparent and pinkish; claspers of the prevailing ground colour. It spins a slight web amongst the leaves of its food-plant, and changes to a pupa in May; the perfect insect appears in June. I am indebted to Mr. Wright for the opportunity of describing this beautiful larva.—*Edward Newman.*

Description of the Larva of Cidaria ribesiaria.—The eggs are laid in July, on the bark of currant and gooseberry stems, but do not hatch until the following spring, when the larva feeds on the leaves, and is full-fed in June. Head rather small, porrected, but not distinctly exserted; 2nd segment small and narrow; 3rd swollen all round; the remainder of the body uniformly cylindrical. There are two very distinct varieties; in the more common variety the colour of the head is sepia-brown, variously shaded

and spotted with darker tints of the same: body dingy brown; 3rd segment with a transverse elevated black band, which contains eight white dots; 4th segment with a conspicuous black dot on each side; on every segment from the 4th to the 11th, both inclusive, is a median dark mark, which divides at each extremity, the anterior divisions divaricating slightly and becoming lost as they gradually merge in the ground colour; the posterior division divaricating decidedly and abruptly, and terminating at the exterior posterior margin of the segment; each pair of divisions encloses a paler and somewhat triangular space, and these triangles meet base to base at the junction of the segments, thus forming a series of medio-dorsal lozenge-shaped markings, eight in number; in each dark marking are four white dots, and in each lozenge is a median longitudinal black and slightly waved line; the sides are delicately variegated with different shades of sepia-brown, and every segment has a few scattered hairs. The other variety is green, and exhibits traces, more or less distinct, of the markings I have described. Full-fed about the middle of June, when it spins a slight web between two leaves of the food-plant, and therein changes to a pupa. The moth appears in July. This description of the larva is taken from a specimen lent me by Mr. Wright, and carefully compared with an exquisitely beautiful drawing by Mr. Buckler.—*Edward Newman.*

Description of the Larva of Platypteryx unguicula.—This species is supposed to be double-brooded, a subject on which I am not qualified to express an opinion; all that I can assert positively is that the larva occurs abundantly in August and September, and the moth in May, and that the May moths emerge from the August larvæ is beyond a question, but the point to be settled is whether there is an entire round of existence—egg, larva, pupa and imago—between May and August, which is a view of the case taken by most Lepidopterists. The egg is laid on the leaf of *Fagus sylvatica* (beech), especially on those stunted or pollard trees which so abound in Epping Forest. When full-fed, in which state it is found at the end of August and throughout September, the larva rests in a nearly straight position, but with both extremities slightly raised, and not touching the object on which it rests; when roughly touched or jerked off with the beating-stick, it very frequently hangs by a thread, and,

thus suspended, begins twirling round and round, at first slowly, and afterwards with great rapidity,—a feat I have sometimes seen performed by a slug when suspended by a thread of slime exuded from its own body. Head manifestly wider than the segments immediately following, prone, slightly notched on the crown, which rises in a very marked manner above that part of the back which is immediately behind the head: the body tapers gradually to the 11th segment, and thence more suddenly tapers in a point; this point appears to be the anal flap; on the 4th segment are two closely approximate warts placed transversely: every part of the body is beset with minor warts, each of which emits a hair. Colour of the head pale reddish brown, reticulated with darker brown; body having the dorsal surface dark umber-brown; there is a pale, almost white, narrow stripe on each side, commencing close to the head and passing obliquely towards the back, where it unites with a medio-dorsal white V-shaped mark on the 6th segment; the same marking is continued as a pale brown shuttle-shaped dorsal stripe on the 7th, 8th, 9th and 10th segments, and is intersected throughout by an extremely narrow dark median line; there is a conspicuous and elongate pale spot on each side of the 11th segment; the dorsal warts on the 4th segment and the anal point are reddish; belly, legs and claspers very pale, and having a very obscure tinge of green. It descends to the ground in September, and changes to a pupa on the surface of the earth or among the leaves, in a slight web. The pupa is brown, the wing-cases having a greenish tinge.—*Edward Newman.*

Description of the Larva of Bryophila glandifera.—The eggs are laid in September, on those flat lichens which so commonly cover the surface of stones used in building walls, bridges, houses, churches, &c.: they are white, and in confinement are arranged in a perfectly straight line; they are hatched in October, the little larvæ on leaving the egg-shell being perfectly black and very hairy: they appear to hibernate in crevices of the stone while still extremely small, but in the following March or February, or even the end of January if the weather happen to be wet and mild, they again begin to feed: each then constructs a house for himself, a kind of cocoon made of silk and particles of earth,

mortar or stone ; this cocoon has little resemblance to the usual formula adopted by larvæ when preparing for pupation, but is very like the blister we occasionally see on paint ; this cocoon, while tenanted, is closed at both extremities, just as though the occupant had shut himself up for good, and all to undergo pupation : in the night or early morning, more especially in wet weather, he gnaws an opening at one end of his dwelling-place, comes completely out, and feeds on the lichen ; but during the greater part of the day, and indeed during the night also in very dry weather, he remains shut up in his house : in moist weather, after making a copious meal on the saturated and swollen lichen, each larva seeks his accustomed shelter, always carefully fastening the door, or, in other words, spinning up the opening ; but it is curious, and rather opposed to the ordinary habits of insects in this respect, that, as a general rule, each larva is totally careless whether he return to his own dwelling-place or to that of some friend or relation ; he will, without a moment's hesitation, coolly possess himself of any tenement he finds unoccupied, and, carefully closing the entrance, maintains his position against all comers ; supposing, however, that the tenement he examines with the view of taking possession be already occupied, he never presumes to intrude, never thinks of contesting the point, but continues to wander about on the look-out for a house until he finds one unoccupied : an occupied cell is invariably closed, so that when you find one open you may at once conclude it is an empty house ; in no instance do two larvæ attempt to occupy the same dwelling, either as joint tenants or tenants in common ; should any difficulty arise in finding an empty house, which not unfrequently happens, he sets to work in the most contented manner to construct one, and probably before now is as comfortably housed as any of his friends : I have said that in dry weather these larvæ remain sealed up in their domiciles, and when this continues for long they appear to suffer greatly from lack of food ; for if the cocoon be forcibly opened after a long continuance of drought, its body is found in a very shrivelled and atrophied state, and its head disproportionately large and conspicuous. When full-fed, which is about the end of May, this larva has a limp and flaccid character, very similar to that of a larva that has been ichneumoned : it

neither feigns death nor rolls in a ring when disturbed or annoyed, as probably the only protection it seeks or requires is that afforded by its cocoon. Head protracted in crawling, rather narrower than the body ; it is perfectly glabrous, but emits about thirty fine hairs, which are directed forwards ; body of uniform substance throughout, the back slightly depressed, the belly flattened ; each segment has twelve warts, and each wart emits a bristle. Colour of the head intense black and shining, the labrum white ; dorsal surface of the body dark smoke-coloured as far as the spiracles, and having an irregular narrow medio-dorsal white stripe, interrupted on the 10th, 11th and 12th segments ; the warts and bristles are white ; the ventral surface, beginning at the spiracles, as also the legs and claspers, ochreous-yellow ; but in very wet weather, when the larva feeds voraciously, the belly and all the under parts assume a tinge of green ; nevertheless, although these parts assume this green tinge after voracious feeding, they invariably return to their normal yellow colour before pupation, thus proving the altered tinge to be the result of repletion : when the time for pupation arrives, these larvæ usually secrete themselves in holes in the wall, and spin a slight web amongst old spiders' webs, dust and crumbled earth or mortar, in which they undergo the change, but sometimes they use for this purpose the cocoons they had previously constructed as habitations during their larvahood : they usually remain in the pupa throughout June and July, and the moth makes its appearance in August and throughout September. On account of its peculiar economy this species is rather difficult to manage in confinement : the larvæ from which my description is made proved exceedingly restless in confinement, and pertinaciously refused to build or to feed on the diversified banquet of lichens, which, with more than parental solicitude (I will not say judgment) I provided for their well-being. The ground colour of the moth is very variable, sometimes nearly white, sometimes gray-green, and sometimes reddish or dusky brown : it comes freely to sugar, and sometimes is very abundant, more especially on our southern coast. Forty years back it occurred profusely on the canal bridge in the Old Kent Road, but I find no record of its occurrence elsewhere in the London district. I am indebted to Mr. Dell, of Morris Town,

for this larva, and for the interesting particulars of its economy.—*Edward Newman.*

Description of the Larva of Pterophorus trigonodactylus.—Yellowish white, with a shade of greenish; dorsal line light brown; subdorsal line broader, lighter brown; head and 2nd segment fulvous, shining; spiracles black. The larva appears to attack the top of the scape of *Tussilago Farfara* (coltsfoot), causing it to wither, and the head to hang down so as to come into contact with the scape. From thence it appears to make its way upwards through the receptacle into the pappus, amongst the silken threads of which it changes to the pupa state. The presence of a larva or pupa in a head of this plant is indicated by the bent and withered scape, and by the pappus being drawn together into a bundle, in which the insect lies.—*John Peers*; 64, Butter-market Street, Warrington, May 23, 1864.

The first number of an 'Entomologist's Monthly Magazine,' conducted by T. Blackburn and others, has duly made its appearance, and contains the following papers:—1. "New Species of Butterflies from Guatemala and Panama, by H. W. Bates, F.Z.S.," in which ten American species are described. 2. "Descriptions of the British Species of *Stenus*, by E. C. Rye," in which four British species are described, namely, *Stenus biguttatus* of Linneus, *S. bipunctatus* of Erichson, *S. guttula* of Müller, and *S. bimaculatus* of Gyllenhal. 3. "A few Words on the Species of *Pterophorus* noticed by Linné, by H. T. Stainton, F.L.S.," in which is comprised a life-history of *Pterophorus didactylus* of Linneus, translated from a paper by Dr. Schleich, at p. 96 of the 'Stettin Entomologische Zeitung,' for the present year. 4. "On the Structure and Affinities of the *Latridii*, by T. Vernon Wollaston, M.A., F.L.S.," a very learned and abstruse question on a difficult subject, and handled with Mr. Wollaston's customary ability. The under-mentioned shorter records will have more attraction for the British Entomologist:—"Observations on the Economy and Moultting of the Larva of *Micropteryx*, by Charles Healy." "Oxytelus speculifrons, a new British species, by E. C. Rye." Mr. Rye has taken a single female

on the Thames bank near Hammersmith, and has identified it with the *O. speculifrons* of Kraatz, Ins. Deutschl. ii. 862, note. "On Waterfall Insects, by W. Garneys," in which Mr. Garneys states he found *Stenus Guynemeri* and *Quedius auricomus* at a water-rill near Matlock: the title of the paper leads one to expect something more than this. "Orgyia gonostigma, *Notodonta chaonia*, *Dasympa rubiginea*, *Pericallia syringaria*, by the Rev. J. Hellins." Mr. Hellins records that hybernated larvæ of *O. gonostigma* began to feed on the 5th of May; that a specimen of *Notodonta chaonia* was taken flying round a gas-lamp at Exeter on the 25th of April; that a specimen of *Dasympa rubiginea* was also taken at a gas-lamp at the end of March; and that a score of the larvæ of *Pericallia syringaria* were found hanging at night from their food-plant, *Lonicera periclymenum*. "Batalis incongruella at West Wickham, Hermaphrodite Insects, Hybrid Insects, by R. M'Lachlan." Mr. M'Lachlan took *B. incongruella* at West Wickham on the 8th of April: he expresses a wish that all instances of hermaphrodism and hybridism in insects should be catalogued. "Probable Food of the Larvæ of *Micropteryx mansuetella*, by Charles Healy." Mr. Healy suggests that *Mercurialis perennis* is the food-plant of *M. mansuetella*, from having seen the moths flying about that plant. "Proceedings of the Entomological Society of London," being a glance at the doings at the May Meeting of the Society, after the manner of the concise reports in the 'Athenaeum.' "Wasp attacking Larvæ, by G. Gascoyne." Mr. Gascoyne relates that half a dozen of his juvenile larvæ of *Endromis* were consumed by a wasp, who received the punishment of death for his crime. "Xylina conspicillaris, by the Rev. E. Horton, M.A." Mr. Horton records the breeding of a fine specimen of this rare *Noctua* on the 19th of April last; it emerged in the forenoon, at the same time as the *Tæniocampæ*: when at rest the wings are closely pressed to the sides as in *X. putris*, the breadth across the thorax being greater than across the other extremity, wings included.

The price of this little Journal is sixpence: it contains twenty-four pages of letter-press, and has my hearty good wishes. *Esto perpetua.*

I am very pleased to receive a 2nd and 3rd number of the 'Naturalist,' and also to observe that the Editor has afforded us Entomologists a larger allowance of space than in No. 1. In No. 2 Mr. Liversedge records the capture of a specimen of *Crymodes Templi* on the 30th of April. Mr. Inchbald has an interesting paper on the oak and its galls, which is well worthy of attentive study ; but it seems to want the names of the species to which the author alludes : I hope he will make this useful addition in his next paper, recollecting that "*Nomina si nescis perit et cognitio rerum.*" Mr. Porteous records that he is breeding *Closteria anachoreta*, and that he has seen a male *C. anachoreta* paired with a female *C. curtula* ; W. H. C. cites a passage from Westwood on the Sacred Beetle of the Egyptians ; Mr. Blackburn gives a paper on the preservation of caterpillars ; and Mr. Dallas informs us that *Ateuchus sacer* was regarded as a sacred animal by the Egyptians. In No. 3 Mr. Inchbald again appears, and now as the historian of the galls of the willows ; Mr. Hodgkinson gives an account of stray rambles, but some of the insects he mentions are unknown to me, for instance the "*Lurker (Bidaria larentaria)*;" perhaps some of them are misprinted, and I have no desire to be hypercritical on that point ; but the names as published afford no clew to the writer's meaning : in conclusion, Mr. Buckmaster gives a list of twelve Lepidoptera taken near London during the present year : none of them are uncommon.

Destructive Economy of Meligethes.—I write you in consequence of the very serious injury the coleseed crops are now suffering from a minute beetle, three or four of which I send in a quill. I also enclose a portion of the plant, by which you will observe that not a single pod has been formed. The beetle makes a hole in the unexpanded flower, and the whole inside is eaten, after which the flower-bud drops off. A great number of the Hymenopterous insects are constantly flying round the flower-heads. I have sent three in a quill. If you can, without inconvenience, give me the names of the insects, or either of them, I shall be greatly obliged. I have hunted through the Agricultural Society's Reports, but do not find what is wanted.—*Marshall Fisher ; Ely, May 16, 1864.*

[The little beetle is *Meligethes picipes*; the Hymenopteron, *Microgaster alvearius*: I cannot suppose any connexion between these two insects, but rather incline to believe that the Microgaster was in search of some Lepidopterous larva in which to deposit its eggs.—E. N.]

Geophilus electricus a Food of Coleoptera.—The above-named insect is synonymous with the *Scolopendra electrica*, &c., and has been seen by only a few of the naturalists of this locality. It is not, I believe, of general occurrence through England. Within the boundary-walls of Walton Gaol there are several acres of garden-ground, and on the gravel-walks, during the autumn of 1861, I first observed this insect. It was a dark, warm evening when my attention was drawn to a number of beautiful luminous objects, apparently running to and fro on the walks. On throwing the light of a lamp upon one of the moving objects, I was astonished to see nothing but a beetle. Examining others, the same thing presented itself, and I supposed that I had discovered a new luminous Coleoptera. The light from the lamp, however, was so much stronger than that emanating from the beetle, that I could not make out from what portion the phosphorescence proceeded. The idea of a new phosphorescent beetle was dispelled a few evenings afterwards, for, taking a big dog along with me, I observed that his feet were soon illuminated, and as he trotted along it was really a very interesting sight. I was now more puzzled than before, for I found that many of my own footsteps had left a light behind me. On examining one of the beetles I perceived that it held between its mandibles what appeared to be a small worm, torn and wounded, and from the wounds the phosphorescent light emanated! Then, searching for some of the worm-like objects on the surface of the walk, I saw that they were in abundance, and on rubbing some between my hands they were immediately covered with a pretty blue blaze of light. I had now discovered the cause of the light, or at least what was necessary to produce it. The beetles were feeding upon the *Geophila*, and before the light could be produced it was necessary to bruise or lacerate the latter. The light continued in each case for about the space of ten minutes, and then slowly died out. Even plunging

the insects into spirits of wine did not extinguish the light sooner than when exposed to the atmosphere. I may add that during the autumn evenings of 1862 and 1863 there was no perceptible diminution of the Geophila. The question now arises, From whence did they come? It is almost exclusively confined to the gravel-walks, and only makes its appearance on warm evenings soon after rain. I have been out in the neighbourhood in search of Noctuæ at all hours of the night, but have never seen anything of the sort outside the prison-walls. I therefore conclude that it has been introduced with the gravel.—*William Harrison; Walton Gaol, Liverpool.—Naturalist's Scrap-Book, No. 14, p. 21.*

Pterophorus Larva on a Geranium.—In the autumn of 1863 (about October) I found the pupa of a Pterophorus on the stem of a Tom-Thumb geranium-leaf; it was black, with pale rings, and attached by the tail; there were a few hairs on it. The moth came out between the 14th and 16th inst.; it was 13-sixteenths of an inch in expanse. I have attempted to make a drawing of it, which, though not so accurate as it might be, may enable you to recognize it. The pupa was kept in a cool room, without a fire, so it was not "forced." As I am not well up in Entomology, I do not know if there is anything unusual about the matter; but as Stainton's 'Manual' does not give this month for any of the genus, I thought I would send this to you.—*N. C. Tuely; Wandsworth.*

Is *Eubolia lineolata* considered a coast insect or not?—*B. Rogers.* [I think so: the localities from which I have received it are the north coast of Cheshire and the South coast of Sussex. Mr. Stainton gives Cambridge, but I know not on whose authority.—*E. N.*]

Has the day on which *Lycæna Argiolus* first appears ever been noticed?—*B. Rogers.* [I think so: Mr. Wright, when in my company, took it this year on the 19th of April. *E. N.*]

Is *T. biundularia* identical with *T. laricaria*?—*B. Rogers.* [I consider *T. laricaria* and *T. crepuscularia* synonymous, but regard *T. biundularia* as distinct. See Doubleday's 'Catalogue,' p. 5.—*E. N.*]

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THE ENTOMOLOGIST.

No. 4.]

AUGUST, MDCCCLXIV.

[PRICE 6D.

Description of the Larva of Acronycta Aceris.—The eggs are laid in July, but whether on the leaves, twigs, or trunk of the food-plant I am unable to state with any certainty. The larva is full-fed in August and September, and then if annoyed rolls itself into a compact ring, with the head on one side like an *Iulus*, and in this position it remains for a long time most pertinaciously. Head as wide as the body, wider than the 2nd segment; body almost uniformly cylindrical, densely clothed with long hairs, which converge at the extremities; along each side is a slender skinfold passing immediately below the spiracles. Head black and shining, with a white mark on the face shaped like an inverted letter V; labrum white. Body pale gray, sometimes approaching to flesh-colour, and sometimes having a tinge of smoke-colour, especially near the head, with a medio-dorsal series of kite-shaped snow-white spots; eight of these, those on the 5th to the 12th segments, both inclusive, are bordered with intense velvety black; three others, those on the 2nd, 3rd and 4th segments, are linear and almost confluent, but still bordered by the same intense black; on the 13th segment the black is present, but the white is wanting: the converging hairs form a double series of dorsal fascicles, each composed of nine fascicles and arranged on each side of the medio-dorsal ornamentation just described; these fascicles are usually of a uniform dingy orange-red or salmon-colour, but in some specimens are uniformly ochreous-yellow; in one specimen I have examined six of these fascicles were salmon-coloured, and the rest, indeed all the other hairs on the body, ochreous; spiracles black; legs nearly black; claspers dark brown. This larva feeds on *Acer pseudoplatanus* (sycamore), often on the loftiest branches; also on *Æsculus hippocastanum* (horse-chestnut), and more rarely on *Quercus Robur* (oak): when these beautiful and very

conspicuous larvæ are full-fed they may be observed crawling down the trunks in order to undergo pupation, which takes place in a web on the surface of the ground, amongst fallen leaves, under loose bark, &c.: the perfect insect does not appear until the following June, generally between the 8th and 23rd, when it may occasionally be found resting on the trunks of the sycamores. I am indebted to Mr. Blackmore for the specimen described, and have frequently found others myself.—*Edward Newman.*

Description of the Larva of Triphæna orbona.—Egg laid in July, on a variety of low plants, on which the young larva feeds; one of these very commonly selected is *Stellaria media* (common chickweed): they are hatched in August, and hibernate early: as soon as the buds of the sallow and whitethorn open they ascend the stems and feed on the young leaves: the larva is full fed in May, when it rolls into a compact ring if disturbed. Head, when moving, porrected, rather narrower than the body: body velvety, nearly uniformly cylindrical, but increasing almost imperceptibly to the 12th segment, which is the largest. Colour of head and body dingy umber-brown, the head slightly variegated with darker shades of the same colour; the dorsal region of the body is uniformly brown; the anterior segments from the 2nd to the 5th, both inclusive, interrupted by a median very narrow and very indistinct line; the 11th and 12th segments have each two very conspicuous velvety dorsal markings almost black; on the 11th segment these are distant, narrow, longitudinal and waved; those on the 12th segment are decidedly more approximate, broader and larger; their figure is irregular, but their anterior extremity is pointed, the posterior extremity square; the spiracles are white, and are situated at the extreme edge of the brown dorsal area; beneath them is a broad pale wainscot-coloured stripe extending the entire length of the larva, and this, from the 2nd to the 7th segment, is tinged along the middle with brick-red; the belly is smoky brown, and the legs and claspers are of the same colour. Changes to a smooth brown chrysalis on the surface of the earth: the imago usually appears about the 1st of July, and specimens continue to emerge throughout the whole of July and August. I am indebted to Mr. Thomas Huckett for specimens of this larva.—*Id.*

Description of the Larva of Noctua rhomboidea.—The egg is laid on *Stellaria media* (chickweed) and other low plants, at the roots of which it hibernates when small: in the spring it feeds on chickweed, dock, &c., but also ascends the sallows and feeds on the young leaves; very generally full-fed about the end of May or beginning of June. Head almost prone, rather small, generally half-concealed in the 2nd segment: body smooth, velvety, almost uniformly cylindrical, but having the 2nd, 3rd and 4th segments more slender than those which follow. Head brown, shining: body with the dorsal area as far as the spiracles brown, but the tint of the brown different in different individuals, approaching sometimes to sepia, sometimes to sienna; this brown area is divided by three equidistant narrow stripes of a pale greenish hue, and these three linear stripes are connected on the 12th segment by a transverse bar of the same colour; the back has several black markings, almost taking the character of dots; the belly below the spiracles is pale olive-green. The moth appears in July and August. I have been greatly assisted by Mr. Buckler's beautiful drawing, by which I have recognized larvæ of this species lent me by Mr. Thomas Huckett.—*Edward Newman.*

Description of the Larva of Noctua xanthographa.—The eggs are laid in August and September, on the leaves of *Plantago major* (plantain) and various species of grass, which constitute the food of the larva; it retires towards the roots when very small, secreting itself under any covering that will protect it from the weather; at this season, and again in the spring after it has again commenced to feed, it is very fond of hiding on the under surface of stones, if such occur near its habitat. The full-fed larva drops from its food-plant when annoyed, and rolls itself into a very tight and compact ring, but quickly unrolls when the danger is passed, and crawls with considerable activity. Head in crawling scarcely protracted, manifestly narrower than the body: body obese, almost uniformly cylindrical, but still increasing very gradually from the 2nd to the 12th segment. Colour of the head pale semitransparent brown, very glabrous, with two slightly curved longitudinal dark stripes on the face, and the cheeks slightly reticulated with the same colour: body pale velvety brown, with a narrow medio-dorsal stripe still paler,

and margined on each side with black, which shades off externally into the pale brown ground colour; this black, however, consists of innumerable minute specks, which are crowded when in close proximity to the pale medio-dorsal stripe, but become scattered as they recede from it: just above the spiracles is a rather broad lateral stripe, somewhat darker than the ground colour, with a dark but ill-defined upper margin and a unicolorous and clearly defined lower margin: exactly intermediate between the medio-dorsal stripe and this lateral stripe is a parti-coloured stripe scarcely so wide as the latter; it is divided longitudinally into two equal parts, the upper part very dark brown, almost black, and somewhat interrupted at the interstices of the segments, thus forming a series of eleven elongate blotches, the lower part pale and throwing the series of blotches into bold relief; three pale stripes are also to be traced on the 2nd segment: the legs, claspers and belly are pale, and have a semitransparent appearance. It enters the ground in May to undergo its change to a glabrous brown pupa: the moth emerges in August, and is sometimes a perfect nuisance to the collector who adopts the sugaring mode of capture. Guenée observes that a great number of individuals die in the pupa state, a conclusion at which he arrives from the fact that in France the larvæ are much more abundant than the moth; Mr. Doubleday informs me he thinks this is also the case in England. I am indebted to Mr. Wright for the caterpillar.—*Edward Newman.*

Description of the Larva of Anchoscelis pistacina. — The eggs are laid in the autumn, on the herbage in meadows after the hay-crop has been harvested, more especially on the flowering-stems of various species of *Ranunculus* (butter-cup), on the leaves of which the larva feeds. The larvæ, as mentioned by Mr. Crewe (Zool. 6384), do not emerge until the spring, when they ascend the stalks of the food-plants, which are probably very various, including many *Gramineæ*. The larva is full-fed at the end of May and beginning of June, and then may be readily obtained by sweeping standing grass morning and evening, but not so abundantly in the middle of the day. When disturbed it forms itself into a ring, and rolls to the bottom of the sweeping-net; but on being removed from the *débris* there collected, a strangely heterogeneous mass, it soon finds the

use of its legs, and crawls with considerable rapidity. Head of nearly the same width as the body, semiporrected in crawling; body velvety, of uniform substance throughout, and perfectly without humps. Colour of the head dull green, of the body delicate apple-green, with an extremely slender medio-dorsal stripe almost white, and a somewhat broader and much more distinct lateral stripe, also nearly white; there are, besides, a few white dots on the dorsal surface, each emitting a short and slender hair: on the 2nd and 3rd segments six of these dots form a straight transverse series; on each of the following segments, namely, the 5th to the 12th, both inclusive, are four of these dots, forming somewhat of a quadrangle: as the larva moves a transverse skin-fold becomes conspicuous at the interstices of the segments, and these skinfolds assume the appearance of evanescent yellow rings; the spiracles are very pale, almost white, and each is surrounded by a black margin; behind each spiracle there is often a jet-black spot, and Mr. Buckler has most kindly sent me a specimen in which these spots occur on the 3rd and 4th segments, which never bear spiracles; the whole of the dorsal surface is moreover freckled with minute amorphous markings, scarcely differing from the general ground colour: ventral surface and claspers apple-green; legs paler. "It spins a very tight neat earthen cocoon, in which it remains some weeks before assuming the pupa state: the cocoon, when kept dry, becomes exceedingly brittle." The moth appears in August and September.

—*Edward Newman.*

Description of the Larva of Scopelosoma satellitia.—The egg is laid in March, on twigs of *Quercus Robur* (oak), by females which have hybernated; the larva makes its appearance in May, and spins together the leaves of the oak, forming a retreat from which it sallies forth in quest of its living prey, the larvæ of any other Lepidoptera which may happen to have the misfortune to be located in its vicinity: to the Entomologist who, like myself, indulges in the rearing of larvæ, they often prove most determined enemies. Mr. Buckler writes pathetically on the subject:—"It happens sometimes that in gathering food for other things, one of these wretches, then quite small, lurks among the leaves, and is unconsciously introduced to his prey: an instance of

this kind occurred to me a few years ago, when I had reared fifty-seven larvæ of *Tæniocampa Populeti* from the egg ; they were about half-grown, had spun the leaves of poplar together, and were feeding between them : all went well for a time, but at length I observed spots of moisture between the withered leaves, and, being puzzled at not finding any larvæ in the food that was removed, an investigation took place, when I could discover no *Populeti* larvæ, but an ill-looking monster of a *Satellitia* coiled up at the bottom of the jar. This monster had actually murdered fifty-seven of his fellow-prisoners, and devoured their bodies." I could not find that my own captives ate any of the oak-leaves provided for them, but feasted on juvenile *Brumarias* and such small deer, until I expelled them from the breeding-cage. These larvæ are so decidedly canuibalistic in their propensities, that in default of aliens they will devour their own species. When half or three-quarters grown this larva is excessively active, and very persistent in its endeavours to escape observation, crawling with great activity, and often wriggling backwards out of its retreat, after the manner of a *Tortrix* : the head is porrected in crawling, rounded on the crown, and decidedly narrower than the body : the body is nearly cylindrical, but the anterior segments are attenuated. Colour of the head clear bright brown on the crown, black-brown about the mouth : body rich velvety brown ; the 2nd segment has three paler longitudinal lines on the back ; of these the middle one is less distinctly pronounced than the other two : these appear like the anterior extremities of three dorsal stripes, the remaining portion of which has been obliterated in the greater number of specimens, but which are slightly indicated in some throughout the entire length of the body : on a line with the spiracles there is present, between the 2nd and 3rd segments, and again between the 3rd and 4th segments, a somewhat linear but inconstant snow-white spot ; a linear white spot on the 5th and another on the 11th segment ; these seem like broken portions of a spiracular line which is very evident in some specimens, but scarcely perceptible in others : ventral surface, legs and claspers paler and less velvety than the dorsal surface ; legs variegated with black. From Guenée we learn that this larva, when approaching its full size, descends from its exalted station

amongst the branches of forest trees, and feeds on humble herbs, like the Orthosidæ: emanating from so high an authority I cannot doubt the statement, but the fact has never come within the range of my own observation. It changes to a pupa beneath the surface of the earth.—*Edward Newman.*

Description of the Larva of Cosmia trapezina.—The female lays her eggs on *Quercus Robur* (oak), in August, and less commonly on *Carpinus betulus* (hornbeam); the larvæ abound in the following May, particularly from the middle to the end of the month, and beginning of June. Although doubtless occasionally feeding on leaves, they seem to prefer animal food, devouring with great greediness the larvæ of other Lepidoptera, particularly those of *Cheimatobia brumata*, which absolutely swarm in our woods, forests and gardens during the entire month of May and the beginning of June. It neither feigns death nor rolls in a ring when rudely dislodged by the beating-stick, but falls at full length into the umbrella, amid a shower of the larvæ of *C. brumata*, which the same stroke has also dislodged: in this predicament it instantly catches sight of the first larva that ventures to crawl, and starts in immediate pursuit, and an exciting race ensues, in which the *Cosmia* is not always the victor, the *Cheimatobia* sometimes escaping through sheer superiority of speed: the carnivorous larva, however, generally gains the day, and it is curious to observe that he does not seize the leaf-feeder by the hinder part of the body, but never slackens his pace until his head is abreast of the other's neck, which he then seizes with savage eagerness, reminding one strongly of a deerhound pulling down a stag, or at least to the representations of this cruel feat by the inimitable Landseer. When the first paralyzing grip is given it is all over with the leaf-feeder; there is scarcely a struggle; the *Cheimatobia* submits to its fate, and the *Cosmia* continues his repast, until one wonders at his power of consumption: when introduced into the collecting-box with any other larva, a somewhat similar scene ensues, but the chance of escape for the leaf-feeder is gone, and his destruction is inevitable: I have rarely, if ever, opened a box, in which a *Cosmia* and *Cheimatobia* have been enclosed together, without finding that the latter has fallen a prey to the former. The head of the *Cosmia* larva is manifestly

narrower than the body, very glabrous, and porrected in crawling ; the body obese, slightly narrowed at the anterior extremity, and slightly swollen on the back of the 12th segment. Colour of the head dusky semihyaline green ; body pale dull green, with numerous small warts, and five equidistant pale, almost white, stripes extending its entire length ; these stripes are often tinged with yellow or yellow-green, and the outer or lateral stripe is often bordered with dark smoke-colour along its upper margin ; the warts are jet-black and surrounded by a ring of pure white, and each emits a rather conspicuous bristle ; on each segment there are usually eight of these warts ; on the 2nd, 3rd and 4th segments they are arranged in a straight transverse series, but on the following segments, namely, the 5th to the 12th inclusive, four of them are arranged almost in a square on the back, and two below them on each side ; the medio-dorsal stripe is narrow, but very distinct ; the next on each side is still narrower, irregular and interrupted ; the exterior or lateral stripe is much wider than the others and very distinct ; it includes all the spiracles, except the 1st and 9th ; the upper margin of this wide stripe is sometimes bordered with black, which merges abruptly in the general ground colour : the ventral surface, including the legs and claspers, is delicate apple-green, with a semitransparent appearance. It changes to a pupa in a slight web on the surface of the earth : the pupa is a brown-colour, covered with a beautiful bloom like that on a ripe Orleans plum : the moth appears in July.—*Edward Newman.*

Description of the Larva of Polia Chi.—The eggs are laid in the autumn, and hatched in the spring, from the 17th to the 31st of March : the larva feeds on *Crataegus Oxyacantha* (whitethorn) and *Salix capræa* (sallow). When full-fed, which is about the middle of May, the head is slightly porrected, and about equal in width to the 2nd segment ; the body is smooth and almost uniformly cylindrical, but slightly decreasing in size towards both extremities. Colour of both the head and body glaucous-green ; the dorsal area paler than the ventral, and interrupted by three slender white stripes, the medio-dorsal stripe being the least distinct of the three ; the dorsal area is bounded, on a line with the spiracles, by a narrow black stripe, the upper margin of which

melts, through delicate gradations of olive-green, into the pale glaucous-green of the back, but its lower margin is bounded by a very distinct and rather broad pure white stripe; belly, legs and claspers glaucous-green; spiracles pure white, surrounded by a black ring; on the 3rd and 4th segments, in an exquisite drawing by Mr. Buckler, kindly lent me by Mr. Hellins, are represented black dots exactly in the place occupied by spiracles in the spiracle-bearing segments. In reference to these abnormal markings, which may be called false spiracles, Mr. Buckler observes:—"I have seen similar markings on the larvæ of other Noctuæ, but very rarely; and I may here mention that in some of the more dingy-coloured Noctuæ, I have had varieties in which the spiracles have not been visible by any distinction of colour or markings, while in other individuals of the same species they will be most distinct; these aberrant markings on the 3rd and 4th segments are remarkably large on some of the Cuculliæ when they do occur." Since Mr. Buckler wrote this he has had the kindness to send me a larva of *Anchoscelis pistacina* in which this peculiarity is very apparent. The larva descends to the ground about the middle of May, and undergoes pupation beneath the surface of the earth. The moth begins to emerge about the middle of July, and continues to do so through the months of August and September. I am indebted to the Rev. J. Hellins and Mr. Buckler for my knowledge of this larva and the particulars of its history. It is generally distributed over the continent of Europe, but in Great Britain is considered a northern insect, being scarcely ever met with in the southern counties.—*Edward Newman.*

Description of the Larva of Polia flavocincta.—The eggs are laid in October and hatch in the spring; the larvæ feed on *Stellaria media* (chickweed), *Senecio vulgaris* (groundsel), various species of mint and many other herbs; they are full-fed in June and July. The full-fed larva rests in almost a straight position, with the head slightly tucked in, but falls off its food-plant and forms a rather loose ring when annoyed. Head manifestly narrower than the body, partially retractile within the 2nd segment: body uniformly cylindrical, smooth, velvety. Colour of the head pale opaque green, with black ocelli: body pale apple-green, inclining to glaucous, irro-

rated with minute white dots; there is a narrow median stripe on the back, slightly darker than the rest, but very indistinct; along each side is a very slender white stripe passing below the spiracles, but just touching them; this is bordered above by a very narrow and interrupted black stripe, particularly observable between the 1st and 2nd spiracles, and having a conspicuous black dot behind the 2nd, 3rd, 4th, 5th and 6th spiracles: the spiracles are dingy yellow, bordered with black; legs almost colourless; claspers pale transparent green. When full fed the larvæ enter the earth to change to pupæ; the perfect insect appears in September. I am indebted to Mr. Wright for specimens of this larva.—*Edward Newman.*

Description of the Larva of Amphiipyra pyramidea.—Rests in nearly a straight position; it does not fall from its food-plant if annoyed, unless compelled to do so; it never rolls in a ring. Stout, obese, of nearly uniform width throughout; the 2nd, 3rd and 4th segments, however, are rather more slender, and the 12th rises in a pyramidal form, and is surmounted with a medio-dorsal horn-like point which is slightly curved backwards. Colour of the head apple-green; body in some examples apple-green, in others glaucous-green: in all there is a narrow medio-dorsal stripe extending from the head to the anal flap, and interrupted only by the horn-like summit of the 12th segment, which is red: a lateral stripe passes along each side, just below the spiracles, from the head to the extremity of the anal flap, the spiracles themselves being white and surrounded by a black ring on each side; exactly intermediate between the medio-dorsal and lateral stripe is a waved and much interrupted stripe which originates immediately behind the head, and, after pursuing its sinuous course along eleven segments, ascends to the summit of the pyramidal protuberance on the 12th, and again descends in a curve, vanishing in the anal flap; looking down on the summit of the pyramidal protuberance, six stripes seem to radiate from it in as many different directions: besides these stripes there are several dots on every segment, excepting the 2nd; on the 3rd and 4th segments these dots are eight in number, and arranged in a transverse dorsal series; on the following segments there are generally three of these dots between the medio-dorsal stripe

and the interrupted stripe, and one between the interrupted stripe and the lateral stripe: the whole of these stripes and dots are of a yellowish white colour and are very distinct; each dot emits a minute and delicate hair from its centre; the legs are green, spotted with black, the black preponderating; the ventral surface and claspers are apple-green. Full-fed on the 1st of June, and then changes to a pupa in a cocoon on the surface of the earth: the moth appears in August.—*Edward Newman.*

Description of the Larva of Mania maura.—The eggs are laid on fruit trees, in the autumn, and the young larvæ hibernate early; they feed again in spring as soon as the leaves expand, and are full-grown in May. Head slightly porrected and rather small: body smooth and velvety, rather attenuated and leech-like anteriorly, stouter from the 7th to the 11th segment. Colour of the head and body dingy umber-brown, with various darker and paler markings; head obscurely reticulated; 2nd, 3rd and 4th segments with an interrupted pale medio-dorsal stripe; in some specimens this may be indistinctly traced throughout every segment, except the 13th; on the back of each segment from the 5th to the 12th, both inclusive, the brown colour is intensified in a lozenge-shaped mass; these lozenges are eight in number; the last is cut off posteriorly by a transverse black bar extending on each side to the spiracles: on the side of each segment, from the 5th to the 12th inclusive, are a variety of paler and darker markings: the spiracles are reddish, with a black margin, and above each is a rather complicated marking, consisting principally of a pale oblique bar, bordered posteriorly by a dark brown or black oblique bar, and having a black marking united to it anteriorly; on the 12th segment is a narrow black bar extending from spiracle to spiracle. I have found the larva feeding on strawberry leaves, but this is, I think, uncommon. The perfect insect appears in July and August, and is fond of resorting to summer-houses, boat-houses, sheds, &c., in the interior of which it may frequently be observed in the day time, sitting on the inner surface of the roof: I once counted twenty-eight in a boat-house at Godalming. I have been favoured with a sight of an exquisite drawing of this larva by Mr. Buckler, which has greatly assisted me in preparing this description.—*Id.*

Spotting of Tortrix and other Larvæ. — Is there any structural characteristic whereby to distinguish the larvæ of the Tortrices from those of allied groups? Nothing is more easy, as far as my experience goes, than to breed a *Depressaria*, for instance, from a larva taken for a *Tortrix*. If a distinctly marked (spotted) larva of this group be examined, say *Tortrix icterana*, it will be seen that the disposition of the spots on the 3rd and 4th segments is very different from that of the rest. The dorsal spots, from the 5th to the 11th, both inclusive, are disposed in the form of a trapezoid, the narrow end foremost. On the 3rd and 4th segments, which I suppose we must call the meso- and the metathorax, this arrangement is altered. Here we have the upper four spots following each other in a line across the segments like a necklace; after and below them come two spots, placed side by side at right angles to the others. Below these, again, we have (usually, for in some larvæ the lower dots are very indistinct) another dot which gives the four a somewhat rhomboid form. Besides these ten spots, which are almost universally present in a greater or less degree, we find two other rudimentary ones occupying the place taken up by the legs and claspers upon the other segments. Now, what I wish to know is, whether this disposition is peculiar to the Tortrices, or is it found in other and allied groups? If peculiar, it would be a ready means of distinguishing them. It would appear, from the uniformity of the arrangement of these discoloured elevations, that they are disposed in strict conformity to some law not yet discovered,—that in fact there is some structural reason for their being so placed. Is it not a most lamentable fact that out of some three hundred and odd Tortrices, more than two hundred should have their larvæ either undescribed, insufficiently described, or totally unknown? The undoubted fact that the general run of so-called Entomologists are merely collectors, and not students of Entomology, is, I conceive, the chief cause of this deplorable state of things. When we consider how much better moths are when bred than when taken, and how much breeding them adds to our knowledge of their economy, we are at a loss to understand how it is that this somewhat disgraceful state of things should have so long

continued. — *John Peers* ; 64, Buttermarket Street, Warrington, June 6, 1864.

[The time is approaching when we must have a larval arrangement of Lepidoptera: I can never hope to accomplish this, but nevertheless it will assuredly be done: the idea occurred to the authors of the Vienna Catalogue, and subsequently to Dr. Horsfield; but the author last-named worked out his system in a manner too fanciful to be of any real utility, and the other distinguished Entomologists never sufficiently explained their views: the truth has already been shadowed forth in a paper by myself, showing that the larvæ must be used for mapping out great continents, if we may so call them, of Lepidoptera; and the characters of the perfect insects for dividing those continents into zones or minor divisions: the formula of spotting, to which my correspondent alludes as that of a larval *Tortrix*, is common to many of the *Noctuidæ*; indeed it very frequently occurs in those larvæ which are cryptobious: Mr. Peers will do the Science a great service if he continue his investigations, and from time to time give the results to the public. I will not attempt an answer to his inquiry, never having given sufficient attention to the *Micros* to enable me to do so with any confidence. With regard to my correspondent's lamentation over our ignorance of the larval states of insects, no one can sympathize with him more sincerely than I do. The 'Entomologist' is indeed mainly established to fight the battle of the larvæ; it will be uphill work, but I think that, having once put my hand to the plough, there is little probability of my turning back while life and health allow me to persevere.—*Edward Newman.*]

Fluid ejected by Tortrix Larvæ. — Whilst I am upon the subject of larvæ, I should like to ask if you have noticed that a *Tortrix* larva will reimbibe the fluid which some of them eject when annoyed by a touch near the head? That they will do so I have repeatedly observed; and it is a curious fact that the colour of the juice ejected is usually (invariably?) that of the larva itself.—*John Peers.*

[This is a very curious, and to me novel, fact. I am not aware what is the nature of the fluid so freely ejected from the mouth of larval *Tortrices*; it may be used merely as a means of defence.—*Edward Newman.*]

Larval Reproduction in Insects.—‘ Siebold and Kölliker’s Zeitschrift’ for 1863 relates a curious discovery by Professor N. Wagner of some worm-like insect larvæ filled with smaller larvæ of the same kind. Except in the remarkable fact that the mothers are themselves only larvæ, these instances resemble the asexual reproduction of the Aphides. The larvæ were obtained from under the bark of elms in Kasan, and appear to belong to some species of Diptera. The ‘ Archives des Sciences’ remarks, “That amongst the asexual plant-lice the pseudova, or false eggs, are found in an organ which is the homologue of the ovary in the sexual individuals; whilst in the apodal larvæ observed by M. Wagner the pseudova are formed in the fatty body. This organ divides itself into a certain number of lobes, which surround each one with a special membrane.”—*Intellectual Observer*, May, 1864, p. 306.

[Statements of this kind are annually reproduced to the intense delectation of the wonder-mongers: the larvæ are those of one of the Pteromalidæ which habitually infests the larvæ of Diptera. The existence of larval procreation is neither impossible nor unlikely, but we shall make a fatal mistake if we confound it with the familiar parasitism of the Ichneumonidæ.]

Early Swarm of Bees.—The fine weather of the month of May seems to have caused the bees to swarm earlier than usual; and what is more remarkable, on the 19th May, a swarm of these industrious insects fixed upon, for their temporary abode, a lamp-post opposite a shop in the market-place where bee-hives are sold; their owner having purchased one of these rustic straw habitations, with very little trouble transferred them to it.—*J. Walton*; *Knaresborough*, June 4.

Forty Thousand Pounds’ worth of Butterflies.—In the canton of Basle not less than 12,000,000 butterflies have been caught this year, and the Government has paid the catchers the not inconsiderable sum of 1,000,000f. Naturalists tell us that of every hundred of these beautiful insects, forty-five are females; and as each of the latter is estimated to lay, on the average, forty fruitful eggs, the destruction of these 12,000,000 is virtually the same as the annihilation of 216,000,000 caterpillars.—*Daily News*.

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[PRICE 6D.

Analytical Notice of 'A Catalogue of the Coleopterous Insects of the Canaries, in the Collection of the British Museum.' By T. VERNON WOLLASTON, M.A., F.L.S. 1864.

MR. WOLLASTON is so favourably known to Entomologists by his varied and valued contributions to the Science, that no encomiums of mine can add a tittle to the fame he has so deservedly acquired. A second observation: although I have, for the sake of uniformity, intituled this brief notice "analytical," it will, I am sure, not be expected that I should minutely analyze a work which treats exclusively of Canarian Coleoptera, in a Journal designed mainly to make known the entomological productions of the British Isles. Lastly, I cannot honestly refrain from expressing the regret I feel that an author so capable of compiling instructive summaries and penning logical deductions, should in any instance have left his readers to do this for themselves: there is not only the labour of the task to be considered, but the unsatisfactory character of all conclusions to which the author himself is not a party.

The Atlantic Islands to which Mr. Wollaston's researches have latterly been extended are seven in number—Lanzarote, Fuertaventura, Grand Canary, Teneriffe, Gomera, Palma and Hierro; and the coleopterous fauna of the whole, so far as ascertained, amounts to 930 species, of which Lanzarote produces 277, Fuerteventura 261, Grand Canary 325, Teneriffe 539, Gomera 222, Palma 254, and Hierro 165. The total number of species recorded by Webb and Berthelot, whose work contains almost the only previous catalogue of Canarian Coleoptera, is 179; and concerning the authenticity of even some of these, grave doubts are entertained by the author, whose great care is shown in the following extracts relating to two of them:—

Erodius europaeus.—"I feel far from satisfied that the examples of MM. Webb and Berthelot may not have been accidentally imported into the islands (a possibility which is not diminished by the consideration that a true *Erodius* is now before me which was taken by Dr. Crotch on the Mole at Sta Cruz in Teneriffe—escaped from the actual vessel in which he had himself arrived from Mogadore!). I cannot admit the genus *Erodius* into this Catalogue without at all events further evidence. Indeed, *Arthrodies* being so essentially the *representative* of *Erodius* at the Canaries, where moreover it is so universal, it might involve a serious geographical blunder to include the latter (which may perhaps have been a mere chance-introduction from the African coast).”—P. 437.

Akis acuminata.—"The present position being the proper one for the *Akisidæ*, I should mention that the *Akis acuminata* of Fabricius is recorded by M. Brullé as Canarian, on the evidence of specimens supposed to have been captured by Messrs. Webb and Berthelot. I examined them, when in Paris; but as I feel considerable doubt whether they are truly Canarian, I cannot admit the species into this Catalogue. It is far from impossible that it *may* occur in these islands; but, at the same time, I think it is much *more* likely that the examples were obtained (perhaps alive) at Sta Cruz, having been brought over accidentally in some of the trading vessels from the coast of Africa. Such importations are both natural and by no means unfrequent; and, indeed, I have now before me specimens of a large *Scaurus*, a *Pimelia*, an *Erodius*, and of the *Scarites gigas*, which were picked up by Dr. Crotch on the Mole at Sta Cruz, *escaped from the actual steamer in which he had himself arrived from Mogadore* (the insects having been captured by himself and the sailors on the little island off that port, and afterwards allowed to run loose on board the vessel)! I conceive it very probable therefore that the *Akis* may have made its appearance in much the same way; or that, at all events, further evidence is necessary before it can be conscientiously cited as a Canarian.”—P. 468.

These extracts will certainly establish Mr. Wollaston's character for extreme caution.

The relative numerical proportion of the different tribes to

which the ascertained species belong, is exceedingly interesting, and becomes more so when compared with the Madeiran list published in 1857. In each instance Mr. Wollaston divides the Coleoptera into twelve sections, arranged as under, and to each I have added the total number of species unquestionably ascertained to be indigenous or naturalised:—

	MADEIRAN.	CANARIAN.
I. Geodephaga.....	71	113
II. Hydradephaga	4	22
III. Philhydrida	13	21
IV. Necrophaga	64	114
V. Cordylocerata	13	51
VI. Priocerata.....	30	89
VII. Rhyncophora	94	176
VIII. Eucerata	4	15
IX. Phytophaga	19	44
X. Pseudotrimera	19	19
XI. Heteromera	41	125
XII. Brachelytra	88	141
	—	—
	460	930

There are many interesting conclusions to be drawn from these lists, not indeed as contrasted with each other, for the results are very similar, but as compared with other and less insular regions of the earth: the learned author has not failed to avail himself of the information they afford, by appending some general observations of great value, but he does not seem to me to make sufficient allowance for the great difficulty that attends the acquisition of anything approaching to a complete series of the species in some of these sections: such is particularly the case with the longicorns, a group to which he has devoted particular attention: if we compare the difficulty and uncertainty of collecting longicorns (Mr. Wollaston's Eucerata) with the ease and certainty of collecting Geodephaga, we shall at once find an explanation of the great preponderance of the latter over the former. I by no means desire to infer that other and physical causes do not also contribute to this discrepancy, but let any stranger come to England in search of our longicorns, and devote even the

time and zeal to the subject which Mr. Wollaston has done, and he would inevitably overlook two-thirds of our species, and amongst the omissions would be *Saperda Carcharias*, *S. scalaris*, *Oberea oculata*, *Lamia textor*, &c. ; in a word nearly all our more conspicuous species. *Aromia moschata*, *Clytus Arietis*, *C. mysticus*, *Rhagium Inquisitor*, *R. bifasciatum*, *Toxotus meridianus*, *Strangalia armata*, and one or two *Grammopteræ*, would in all probability complete the list, and furnish that stranger with materials for profoundly philosophical, yet inaccurate, deductions on the causes which deprived us of the long-horns,—deductions which a cursory glance at the collections of a Wollaston, a Power, a Rye or a Waterhouse might possibly dissipate. Had the Canaries the good fortune to possess an indigenous Wollaston or a resident Power, those specks in the Atlantic might possibly tell a different tale. With regard to the Hydradephaga the case is somewhat different: there is no doubt that every pool and every rill has been carefully swept, and has yielded up its inhabitants to the energetic skill of the explorers; I use the plural advisedly, because Dr. Crotch's labours have contributed largely to the result.

These are mere thoughts which occur in turning the pages of this most interesting volume, which, as a contribution to Science, is one of the most careful and valuable I have ever perused: long may the kind-hearted and indefatigable author live to prosecute his labours! It is impossible for me to do more than invite attention to volumes (I allude to Mr. Wollaston's other works as much as to this) which, in profound research and careful elaboration, are unapproached by anything that this country has hitherto produced. I cannot, however, resist the temptation to append the following paragraph:—

“ Of the genera as yet detected at the Canaries, the largest (and by far the most characteristic) is *Laparocerus* [Curculionidæ], of which no less than thirty-five exponents have already been brought to light (and there are probably many yet to be found). The next is *Homalota*; but as a considerable proportion of the minute staphylinids which compose that immense group are eminently liable to accidental diffusion (through indirect human agencies) over the civilized world, I lay but little stress upon this fact. But the third in order,

namely, Hegeter [Tentyriadæ] is quite as significant as the first, numbering no less than nineteen species. Then follow Calathus and Attalus [Malachiidæ], both of which are largely expressed, and have seventeen representatives (manifestly quite indigenous); Apion has fifteen, but some of them may perhaps have been introduced; Bembidium, Arthrodes [Erodiadæ], and Philonthus have each fourteen; Acalles and Longitarsus thirteen (the former being equally developed, or even more so, at Madeira); Saprimus, Pimelia, Helops, and Anthicus number, each of them, twelve; Aphanarthrum [Tomicidæ] eleven (all *ultra-indigenous*); Hydroporus ten; and Tarphius (likewise positively endemic, and of which more will doubtless yet be found) nine. Indeed Tarphius [Colydiadæ], as I have elsewhere shown, is almost *characteristic* of the intermediate sylvan districts of the whole of these Atlantic Islands; nevertheless it is decidedly more dominant at Madeira (where no less than twenty exponents have already been observed) than at the Canaries." — Preface, p. xii.

Most cordially do I recommend this volume to every Coleopterist: profoundly learned must be that man who will not reap from it abundant instruction.

EDWARD NEWMAN.

Description of the Larva of Pieris Napi.—This butterfly is double-brooded: the eggs which produce both broods are laid on *Erysimum alliaria*, *Nasturtium officinale* (water-cress), *Barbarea præcox*, and probably some other species of Cruciferae: the eggs which produce the first brood of larvæ are deposited in April and May; those which produce the second, in July and August. They are generally attached to the under side of the leaves in a pendant position: their figure is that of a sugar-loaf, but beautifully ribbed longitudinally, and delicately striated transversely; they are attached by the base. The larvæ emerge about the twelfth day, and are full-fed respectively at the end of June and middle of September, when they rest in a straight position, closely appressed to the food-plant. Head small, decidedly narrower than the body; body cylindrical, but tapering slightly to each extremity; dorsal surface transversely wrinkled, the wrinkles

dividing each segment into six sections; both head and body beset with minute warts or points, each wart emitting a hair. Colour of the head and dorsal surface dull and rather dark glaucous green; ventral surface lighter, the division between the two being very distinct, and taking place at the spiracles, which are black, with a bright yellow ring: the warts on the head are generally white, those on the dorsal surface almost invariably black, and those on the ventral surface almost invariably white; legs and claspers of the same tint as the body, but semitransparent. Mr. Greening kindly supplied me with the eggs of this species, and Mr. Buckler with the full-fed larvæ: the latter spun a delicate web over the surface of a leaf early in July, attaching themselves thereto by the anal extremity and also by a surcingle passing over the body behind the thorax, and thus changed into pupæ, having the head rather elevated and terminating in a slender point; the thorax is produced into a slender, thin, medio-dorsal keel, bluntly angulated in the middle; the sides of the 6th and 7th segments keeled and angulated, the 7th more prominently so than the 6th; the following segments have a medio-dorsal keel very little raised, the continuity of this with the thoracic keel interrupted on the 6th and 7th segments. Colour green, fading as they approached emergence to whitish, minutely dotted with black; the keel of thorax and lateral keel of 6th and 7th segments yellow, crested with pinkish brown, the posterior angle of the latter tipped with black. They emerged on the 11th of July. I believe that this species never feeds on the various species of *Brassica*, *Tropæolum* and *Reseda* frequented by its congener, *Pieris Rapæ*, and I also think that the accounts of its destructive powers are entirely fabulous. Mr. Buckler remarks that all the larvæ of this insect which fed on water-cress produced very pretty varieties of the perfect insect, the usual dusky markings of the wings being of a delicate dove-gray, the bases of the wings being more than usually suffused with this tint.—*Edward Newman.*

Description of the Larva of Tortrix viburnana.—I have lately been breeding *Tortrix viburnana* from larvæ which I first found, when very young, agglutinating the leaves of *Andromeda polifolia*: it then accorded with the following description:—Yellowish gray; tubercles and spiracular line lighter; head fulvous; 2nd segment fulvous, the hind margin

dotted with dark brown. It is, however, not confined to the *Andromeda*, but feeds likewise upon *Myrica Gale*. The full-fed larva is light brown; spots lighter; head fulvous, shining; shield lighter, the hind margin dotted with dark brown; legs concolorous with the shield. The pupa is about six lines in length, dull jet-black, with two rows of *adminicula* on each segment, the posterior one having the points the smallest and most closely set. These rings, after running across the back, cease at the sides, the abdomen being smooth. Along with these occur a few long and scattered bristles. *Cremastræ* conical, with seven hooks, three apical and four lateral, the latter set two and two on opposite sides. This larva very much resembles that of *Tortrix costana*, but may be distinguished from that species by its larger size, by its lighter brown colour, and by the hind margin of the shield being dotted with dark brown. *Note*.—The “cremastræ” are the hooks which usually crown the apex of pupæ, and by which they are suspended or attached, as the case may be. The “*adminicula*” are the small spinous projections found upon the dorsal segments of pupæ; they are set so as to point backwards, and are the means whereby the pupa emerges from the cocoon, &c. For a full description of them see Kirby and Spence, vol. iii. p. 255, and vol. iv. p. 354, ed. 1826, or Burmeister’s ‘Manual of Entomology,’ pp. 45 and 47. — *John Peers*; 64, Buttermarket Street, Warrington, July 27, 1864.

Description of the Larva of Peronia caledoniana.—Since last writing I have bred *Peronia caledoniana* from larvæ found upon *Myrica Gale* (sweet gale) on Woolston Moss, on the 6th of July. The larva is green, with the dorsal region darker, especially anteriorly; head fulvous, shining, with two lateral black spots; labrum chestnut; shield greenish, shining. It screws up the terminal shoots of *Myrica Gale*. The pupa is about four lines long, of a reddish colour, the wing-cases lighter. The apex of the puparium is flat or compressed, truncate and somewhat bent under, terminating at each corner in a short, bent, horn-like process. When young the larvæ are yellow, and live between united leaves of *Myrica Gale*.—*Id.*; August 7, 1864.

Description of the Larva of Argyresthia nitidella.—In my search for the larvæ of Tortrices I often stumble upon and

breed those of allied groups. On the 23rd of June I bred *Argyresthia nitidella*. The larva is yellowish green; head light brown; shield faintly indicated; spiracular line light green. This larva, when about to spin up, spins a loose, beautifully reticulated, lace-like web, within which the close oblong cocoon is enclosed.—*John Peers.*

Entomological Periodicals.

The 'Entomologist's Monthly Magazine.'—No. 2 contains four principal articles, intituled "On the Genus *Polycentropus* and allied Genera, by R. M'Lachlan, F.L.S." ; "New Species of Butterflies from Guatemala and Panama, by H. W. Bates, F.Z.S." ; "Descriptions of the British Species of *Stenus*, by E. C. Rye;" and "Lepidoptera at Rannoch, by C. G. Barrett." Mr. M'Lachlan's papers are always acceptable, but the value of the present contribution seems to me somewhat impaired by the use of abbreviations not generally understood, and of which I see no explanation, such as "app. sup." "app. inf." I have a great antipathy to all abbreviations, and have always endeavoured to do without them, believing that a little attention to phraseology will tend more to economise space than the most carefully prepared code of abbreviations. Mr. M'Lachlan gives brief characters of two new genera and one new species as under:—

Genus ECNOMUS, M'Lachlan.

In which the first apical sector of the fore wings ends in a forked cell, but with the following characters presented in the hind wings. These wings are very narrow at the base, and scarcely folded; the costal margin is slightly elevated in the middle; the ramus discoidalis runs close to the costal margin, the upper branch simple, the lower forked, but no closed discoidal cell. The intermediate tibiae and tarsi in the female are only slightly dilated. Sp. *Ecnomus tenellus* of Rambur.

Genus NEURECLIPSIS, M'Lachlan.

One striking character is the absence of the transverse nervule, placed between the costa and subcosta, towards the middle of the costal margin. This is present in all the other genera of *Hydropsychidæ*, with tricalcarate anterior tibiae,

and also in *Philopotamus*, and all allied genera. In other respects the neuration of the anterior wings is similar to *Polycentropus* as here restricted, the first apical sector ending in a forked cell. The hind wings are also similar in form to those of *Polycentropus*; the first apical sector forked, and the discoidal cell closed, but there is an additional apical forked cell, formed by the furcation of the anterior branch of the ramus *subdiscoidalis*. Sp. *Neureclipsis bimaculata* of Linneus.

Genus *CYRNUS*, *Stephens.*

Sp. *Cyrnus flavidus*, *M' Lachlan.* The fore wings are longer than in *Cyrnus trimaculatus* of *Curtis*, and the discoidal cell is not sensibly angulated at the point where the transverse vein uniting it to the radius is placed. The wings are very pale yellow, reticulated with gray. The app[endices] intermed[iae] are apparently wanting; the app[endices] inf[eriores] are more rounded than in *C. trimaculatus*. Not uncommon about the remnant of the old Croydon canal at Forest Hill, in May and June.

Mr. Bates's paper contains descriptions of ten new species of Brazilian butterflies.

Mr. Rye's paper contains descriptions of fifteen British species of *Stenus*: I believe neither of them new to Science.

Mr. Barrett records the principal captures made by Mr. Birchall and himself during their visit to Rannoch in 1861.

Short notices occur as under:—

Mr. Inchbald has bred a sawfly, *Cryptocampus angustus*, from the galls of *Salix vitellina*.

Mr. Eaton remarks on the range of variation in *Sericostoma Spencii*.

Mr. Rye and Mr. Sharp have taken *Oxytelus speculifrons* at Shirley, and Dr. Power at Mickleham.

Mr. Sharp has taken *Stenolophus brunnipes* of *Sturm* in the neighbourhood of London.

Mr. Rye has taken eight specimens of *Epuraea oblonga* of *Herbst* under fir-bark at Shirley.

Mr. Buckler has the following note on the larva of *Leucania littoralis*:—"On the 13th May I found full-fed larvæ of *L. littoralis* at roots of *Ammophila arundinacea*; I have met with these larvæ for some years, having first accidentally, in 1861, captured a small one, which, after feeding up and being

duly figured, was reared; when very young their colour is glaucous-green, with longitudinal stripes, assimilating closely to the under side of the almost cylindrical blades of their food-plant; after April they leave their hiding-places, and burrow beneath the sand, having, by this time, considerably increased in size, and having, also, become much paler in tint, some individuals being almost whitish green, others of a pale flesh-colour."

Mr. Buckler also describes the larvæ of five species of *Lithosia* and of *Xylophasia scolopacina*, which I should mention more at length were it not intended that descriptions, somewhat more extended, should shortly appear in this Journal.

Mr. Edmunds, of Worcester, has bred two specimens of *Xylina conspicillaris*, the pupæ obtained by digging.

Mr. Gregson has bred a specimen of *Agrotis cinerea*; he gives no description of the larva.

Mr. Edward Hopley has taken *Eupithecia lariciata* at Ashdown Forest and Leith Hill; the date the last week in May.

Mr. Meek has bred *Eupithecia fraxinata* from larvæ beaten from the ash in August; they emerged on the 19th of May; and also *Cymatophora fluctuosa* from larvæ beaten from birch last autumn.

Mr. Piffard has found *Pædisca oppressana* on the trunks of poplars at Edmonton; he thinks the larvæ feed on the bark of the poplar, having found the pupa-cases sticking out of the bark: the moth has a peculiar jumping flight, and in bright sunshine jerks itself from the tree to the collector's coat or the adjacent herbage, and as suddenly returns, after a short interval, to the tree-trunk.

Mr. Horn mentions that a bred specimen of the puss moth did not acquire wings of their full dimensions until the afternoon of the second day after emergence.

The number concludes with a Report of a Meeting of the Entomological Society of London.

'Young England.' — The June and July numbers are before me, and I can truly say of the entomological portion of this periodical that it improves with every number: the price is raised to sixpence, so that we have now three monthly periodicals engaged in a friendly competition as to which

shall impart the largest amount of entomological information to the public at the same price.

From the June number we learn that Dr. Williams took, near Westbury, during the first week in May, a specimen of *Stauropus Fagi*.

The July number contains "Notes on the Leucanidæ;" an explanation of the apparent truism noticed in the 'Entomologist,' that large moths lay larger eggs than smaller moths; Mr. Doubleday's familiar recipe for preventing mould on moths, published in the 'Zoologist' (Zool. 8467); and a list of a hundred Coleoptera taken within the last two years by Mr. Cruttwell. This last requires revision: as a complete list it is most imperfect, because some of the commonest species are omitted; as a list of rarities it is equally objectionable, because some of the commonest species are inserted: then again the genus *Dendrophilus* stands alone without a species, and in the next line the word "punctatus" stands alone without even the initial letter of the genus; other species which possess this prefix are very unintelligible, as *O. rotundatus*, and the matter is not much mended when two letters are given, as *Ep. aestiva*.

There are a few other brief notes of captures of Lepidoptera, an offer of exchange, a short and pleasantly written review of the 'Entomologist,' No. 1, and answers to correspondents, among which I observe it stated, as regards Cicada haematoches in the New Forest, that the weight of evidence goes to prove that it is not musical.

Note.—In this department of the 'Entomologist' I ought to observe that the printing of each number nearly a month before the date of publication has hitherto made these notices appear somewhat out of date: this will probably be remedied hereafter.

Entomological Notes, Queries, Captures and Duplicates.

1. *How many times do the Larvæ of Smerinthus change their Skins?*—Has any correspondent observed the number of times the larvæ of *Smerinthus* change their skin? I have reared a larva of *Smerinthus Populi* from an egg found on

the 10th of July, and now, on the 3rd of August, it appears full-grown, but I have not observed a single change of skin.

—*Edward Newman.*

2. *Larva of Agrotis exclamacionis.*—The larvæ I sent you were from Lymington: I found them feeding on carrots, eating them off just beneath the surface of the soil: they had also attacked a piece of mangold and Swedes adjoining the carrots.—*Henry Reeks; Manor House, Thruxton, Andover.*

[The larvæ are those of *Agrotis exclamacionis*: for the benefit of those whose gardens are infested with this pest I may mention that watering with strong lime-water has proved very effectual, but I am perfectly aware how difficult and expensive would be the application of lime-water over a large surface. Examples of this destructive grub have reached me also from Saffron Walden—*E. N.*]

3. *Larvæ of Zeuzera Æsculi.*—The grubs of which I enclose a small one are doing incredible mischief in a young plantation of ash intended for hop-poles: the young shoots, commonly known as “ground ash,” are completely killed from the part where the grub is concealed to the top of the shoot. Can you suggest a remedy?—*James Gilbert.*

[Can my readers help me? I know of no effectual remedy.—*E. N.*]

4. *Receipt for the Sugar Mixture for Moths.*—Would you be so good as to inform me, in your next number of the ‘Entomologist,’ what ingredients you consider best for manufacturing the sugar for capturing moths: I find great difficulty (I may say impossibility) in making sugar and beer of a sufficient consistency to remain long on the trees without drying up. I should feel much obliged if you would favour me with a good receipt.—*H. J. White; Hilton, St. Ives, July 8, 1864.*

“I now proceed to give the various receipts for preparing and using sugar. I believe the first notices of the use of sugar were contained in the ‘Entomologist,’ a work which I have made many efforts, for years past, to procure, but as yet in vain. I must therefore content myself with extracts from its successor the ‘Zoologist.’ The earliest notice I find to my purpose is from the pen of Mr. Douglas, who says:—‘The ‘Entomologist’ and ‘Zoologist’ have each contained several notices of captures of moths by means of sugar, but

there has been no account of the method of using it ; and from the communications of some of my correspondents, I am inclined to believe that it is not generally understood by country Entomologists. A brief direction may therefore be of service, and be the means of making many captures during the ensuing summer. The strongest brown sugar, known as "Jamaica foots," is mixed with hot water to the consistence of treacle, or somewhat thinner, and a small portion of rum added and stirred in ; the composition is then laid on the trunks of trees, in favourable situations, with a painter's brush. I have found that it is better to make long and narrow streaks than broad patches." — *Extracted from Mr. Greene's admirable 'Insect Hunter's Companion,' which I strongly recommend to beginners.]*

5. *Larvæ reimbibing ejected Fluid.* — I can confirm the statement of Mr. Peers, in last month's 'Entomologist' (Entom. 55), that the larvæ of lepidopterous insects frequently reimbibe the fluid ejected from the mouth when the insect is alarmed. I have observed this habit not only in the Tortrices, but also in the Bombyces and Geometræ ; but I think it is confined to cases where the fluid has not been *projected*, but has remained attached to the head. Many of your readers will have observed with what avidity most larvæ, reared in confinement, take in a globule of pure water placed in their way, action of the jaws, as in eating, accompanying the operation : the same action takes place when the ejected fluid is reimbibed, but it is slow and deliberate ; why the difference I cannot say ; perhaps the fluid has to be carefully re-stowed ; if so, are we to conclude that it is supplied in such limited quantities that waste has to be avoided ? or is it that, remaining attached to the jaws, the larva has no other means of disposing of it ? I can positively state that the fluid is *not* always of the same colour as the larva ejecting it. That emitted by *Endromis versicolor*, *Notodonta palpina*, *Nyssia zonaria* and *Clostera anachoreta* is in each case dark green ; the larvæ of the two first-named are green of varying shades, while the two latter have no green about them. — *George Gascoyne ; August, 1864.*

6. *Cymatophora ocularis.* — I have had the good fortune to take one specimen of *Cymatophora ocularis* near Cambridge.—*R. Whyatt ; 16, Newnham, Cambridge, June 29.*

7. *Boletobia fuliginaria* at Clapham.—I have to record the capture of a specimen of this rare Geometra in a garden at Clapham on the 8th inst. It was taken by Mr. William Dorking, of Battersea, who disturbed it in moving some sash-frames. A quantity of decaying wood, in which the larva had doubtless fed, was lying close by. The specimen, which is slightly damaged, is now in my cabinet.—*Troye Blackmore; The Hollies, Wandsworth, July 19, 1864.*

8. *Dosithea eburnata* at Bangor.—I have the pleasure to record the capture, on the 11th and 13th inst., of four specimens (pairs) of *Dosithea eburnata* (Hübner's *Acidalia contiguaria*), at the same spot at Bangor, N. Wales, where I took that in July, 1862, already recorded in the 'Zoologist' of that year. They appeared to be amongst elder, though many other plants on which they might have fed were equally abundant. Each of the females supplied me with a few eggs of a reddish yellow colour, tough, detached. These hatched on or about the 21st instant, and are now in the hands of my friends Mr. Greening and Mr. Cooper, who will try to rear them; but as yet they are too small for description.—*B. Kendrick; Warrington, July 28, 1864.*

9. *Eupithecia subciliata* at Denbigh.—I may at the same time mention the capture of *Eupithecia subciliata* at Denbigh on the 7th instant; I saw several others, but could only get one.—*Id.*

10. *Acidalia rubricata* at Brandon, in Suffolk.—I was so fortunate last Wednesday, the 27th of July, as to take nine specimens of *Acidalia rubricata*; some of them were females, and one of these has had the goodness to lay a few eggs, which have been committed to the care of the Rev. J. Hellins, in the hope of his being able to rear them.—*Frederick Bond; 59, Trumpington Street, Cambridge, July 29, 1864.*

11. "Forty Thousand Pounds' worth of Butterflies."—On reading over the 'Entomologist' for August, I see, at page 56, that you reprint from the 'Daily News' an article stating that 12,000,000 butterflies have been caught this year in the canton of Basle (Switzerland), and that the Government has paid the catchers the sum of 1,000,000 fs. Now, as long as I saw this statement only in the newspapers I had no objection to it, as when there is no news something must be done to fill up the columns; but seeing it in a scientific

periodical I cannot do otherwise than observe that the authorities of Basle offer no reward whatever for the destruction of butterflies, the obnoxious species of this order not being numerous enough in the said district to do any considerable harm ; but evidently the above-mentioned statement applies to *Melolontha vulgaris* (cockchaffer), which appears there in considerable numbers every year. It is to check these destructive insects that the Basle Government in some years spends about one thousand francs (not 1,000,000 fs.) to have them collected. There is a rule that from every acre of cultivated land a certain number of measures must be gathered, and the proprietors are fined if they do not do so ; whereas in bringing the cockchaffers to certain places they receive about ten to twenty centimes per measure. The beetles are then killed in kettles with boiling water, and either utilized as manure or thrown in the water. The above explanations are given in order to prevent some of your readers believing that the authorities of the commercial city of Basle are buying up the obnoxious insects at the rate of about tenpence a dozen, and that the insects, for which a very small amount, say about a penny or twopence per measure, is paid, are not butterflies, but cockchaffers. Basle being my native place, I could not allow such statements as the above without correcting them.

—Albert Müller ; 33, Guildford Street, Russell Square, August 2, 1864.

12. *Notodonta bicolor* in Ireland.—It is reported that Mr. Bouchard has again taken this rarity in the Killarney district of the County Kerry.

13. *Food-plant of Eupithecia pulchellata*.—This interesting entomological puzzle is at last solved : we are indebted to Mr. Doubleday for suggesting the solution of the problem, and to Mr. Hellins for working it out. Mr. Harpur Crewe, who has made the history of our *Eupitheciæ* his especial study, has sent a full description to the 'Zoologist.' The larva spins up the mouth of the corolla of *Digitalis purpurea* (common foxglove), and feeds on the enclosed stamens and young seeds.

14. *Polyommatus Hippothoë* near Westbury.—In 'Young England' for August, Dr. Williams announces the capture of this insect in Godly Grove, near Westbury : the talented Editors, Messrs. Keays and Vaughan having expressed great

surprise at this statement, Dr. Williams assures them that he is quite certain that the species he captured was *dispar* (*Hippothoë*). On the same day, the 7th of June, Dr. Williams took, in the same locality, specimens of *Vanessa Antiopa* and *Apatura Iris*, captures quite as extraordinary at this date.

15. *Erastria venustula*.—I wish to record the capture of the above-named insect, on the 4th of July, in Epping Forest; it was flying, at dusk, over a spot nearly covered with the common heath.—*R. W. Wright; Morland House, Hackney, August 10, 1864.*

16. *An instance of Parasitism in which a Chrysalis of Chelonia Caja produced a living Moth and Larvæ of a Hymenopterous Insect at the same time.*—It is well known that the parasites on larvæ usually kill them before the transformation into pupæ, or at any rate do not allow them to assume the perfect state. M. Künckel has communicated to me a somewhat rare case, in which parasitism has permitted of the appearance of the imago. It occurred to a female of *Chelonia Caja*, which made its appearance alive, but with the wings crippled, at the same time that the parasitic larvæ came out of the chrysalis. Do facts of this kind perhaps explain certain abortions in the imago of Lepidoptera in the natural state? The parasites belonged here to the Hymenoptera, for the larva showed traces of punctures, and the little cocoons were found in the cocoon spun by the larva. Robineau-Desvoidy cites an analogous instance among the Diptera ('Essai sur les Myodaires,' t. 2, 1830, p. 28). M. Carcel, he writes, has seen *Phryxe* emerge from the imago of *Sphinx Ligustri*.—*M. Maurice Girard, in the 'Annales de la Société Entomologique de France,' 4me série, 4me tome, 1864, premier trimestre.—'Entomologist's Monthly Magazine.'*

17. *Duplicates.*—I have a few duplicates of the following Lepidoptera, which I am anxious to give away; the first applicants will have the choice of specimens; residents in the country will please to request their friends in London to call, as I cannot send the specimens by post:—*Agrotis lucerneæ* (good), *A. Ashworthii* (bad), *A. valligera*, *A. Tritici*, and *Aspilates strigillaria*. *Note.*—I intend to insert similar offers every month: the earliest applicants will always have the preference.—*Edward Newman; 9, Devonshire Street, Bishoptsgate, August 2, 1864.*

THE ENTOMOLOGIST.

No. 6.]

OCTOBER 1, MDCCCLXIV.

[PRICE 6D.

Description of the Larva of Anthocharis Cardamines (Orange-tip).—The female lays her eggs on *Erysimum alliaria* (hedge garlic), *Hesperis matronalis* (dame's cress), *Turritis glabra* (tower mustard), *Barbarea vulgaris* (winter cress or yellow rocket), and occasionally on *Cardamine pratensis* (lady's smock), as stated by Mr. Doubleday (Zool. 5146), who observes, with his usual care, that in this instance the greater part of the larvæ must perish, because, when the meadows are mowed, the Cardamine is cut down with the grass before the larvæ are full-fed: it is very probable also that other species of Cruciferæ siliquosæ are occasionally selected in the absence of those mentioned above, but I know of no others which have been noticed in England. When the young larva emerges it makes its way up the flowering-stalk, and as soon as the pods have formed begins devouring them: the larva at first requires but little, and the pods, growing with great rapidity, fully keep pace with its requirements, and furnish an abundant supply of food: it is curious to observe with what pertinacity these larvæ, in confinement, select the pods and neglect the leaves of these plants, and, having watched their proceedings with great attention, I have fancied they devoured the seeds themselves with peculiar relish: sometimes a pod will be pierced exactly over each seed, and the seeds themselves consumed, the pod being neglected until the supply of the more favourite viand had failed. When full-fed, which is during the first week in July, the larva rests in a nearly straight position on the stalk or seed-pod of its food-plant: the head is then of exactly the same breadth as the 2nd segment, and the body of nearly equal breadth throughout, but slightly attenuated towards the anal extremity, which is rounded; the dorsal surface is convex, transversely and regularly wrinkled, the wrinkles dividing each segment into sections; the sides are slightly dilated below the spiracles, and the ventral surface depressed; every

part of the head and body is beset with minute warts, and each wart emits a short bristle. Colour of the head and body opaque glaucous-green, this colour on each side of the body fading through pale glaucous-green into white, the extreme margin of the lateral dilatation being pure white, and constituting a lateral stripe which has its upper or dorsal margin very indistinctly defined, but its lower or ventral margin abrupt and well marked ; this white stripe encloses the very pale spiracles, and extends the entire length of the larva, commencing at the ocelli close to the mouth, and terminating at the rounded extremity of the anal flap ; the ventral surface, legs and claspers are dark apple-green ; the warts on the dorsal surface are intensely black, and also many of those on the sides and ventral surface, but in these regions there occur white warts also, more especially within the white lateral stripe ; the bristles which they emit are black on the dorsal and generally on the ventral surface, but on the lateral stripe they are mostly white. In July the larva descends the stem of its food-plant, and, fastening itself thereto by a surcingle round the middle, changes to a crescent-shaped pupa of very eccentric appearance, both extremities elongated and pointed, the anterior elevated in the air, the posterior firmly attached by a series of minute hooks to a silken film, previously spun on the stalk of the food-plant ; the back is concave, the wing-cases protruding and forming a semicircular arch in the centre of the ventral surface ; colour pale dingy green, approaching to wainscot-brown : in this state it remains throughout the winter, the butterfly emerging in May. I am indebted to Mr. Buckler for a supply of this larva, and to that gentleman, as well as to Mr. Doubleday, for some portions of its interesting history.—*Edward Newman.*

Description of the Larva of Gonopteryx Rhamni (Brimstone).—The eggs are laid singly, about the middle of August, on the twigs of *Rhamnus Frangula* and *Rhamnus catharticus* (buckthorn), the only shrubs on which the larva is known to feed. In the neat hedgerows so common in this country, composed of a mixed growth of whitethorn, blackthorn, oak, maple, hazel, dogwood, and an occasional plant of buckthorn, it is very interesting to watch the female hovering about the hedge, and selecting, with the most unerring instinct, the twigs of buckthorn, though infinitely rarer than

either of the other shrubs, and depositing her eggs on these and these only ; the eggs hatch in about fourteen days ; thus the 1st of May may be considered the earliest day for disclosure, but the periods both of oviposition and of emergence frequently extend over three weeks or even a month, so that during the month of June we find larvæ varying greatly both in size and age ; nevertheless, generally speaking, the caterpillar is full-grown at the end of June, and then rests in nearly a straight position on the leaves of the buckthorn. Head small, decidedly narrower than the 2nd, and still narrower as compared with the 3rd, 4th and following segments ; body widest at the 4th and 5th segments, and thence gradually tapering to the caudal extremity, very convex on the back and transversely wrinkled, slightly dilated at the sides below the spiracles, and rather flattened on the ventral surface ; the transverse wrinkles divide the back into sections, of which every sixth is just double the width of either of the others ; each segment has one wide and five narrow sections. Colour of dorsal surface of head and body dull apple-green, much resembling the leaf of its food-plant, but densely covered with extremely minute black warts, each of which emits a small short and slender white bristle ; the lateral dilatation is glaucous-green, terminating in a slender waved white stripe ; spiracles very pale ; ventral surface, legs and claspers semi-transparent apple-green ; the minute points are present, but are much fewer, and therefore do not communicate the same dull colour to the ventral which is observable on the dorsal surface. About the 18th of June it lightly covers the back of a leaf or one of the twigs of its food-plant with a carpet of extremely delicate white silk, and to this it attaches itself by the anal claspers, forming also a surcingle or loop, the two extremities of which are firmly fixed, close together, to the silken carpet at the distance of a third of an inch from the anal claspers ; this loop passes over the back of the larva, supporting it equally well whether on an erect twig or the horizontal under side of a leaf : this arrangement being completed, the lateral plates of the head separate, and the skin of the back is partially ruptured, a green pointed protuberance making its appearance through the aperture ; this green protuberance performs a slow but constant circular gyration, and at every gyration the skin of the larva recedes towards the

anal extremity, leaving more and more of the enclosed pupa exposed : when the ecdisis is complete the shrivelled skin remains at the anal extremity. Pupa pointed at both extremities ; a dorsal thoracic hump, and a large, bulging, rounded mass in front, which comprises the wing-cases ; it has also three ridges—one medio-dorsal, extending from the pointed head to the anal extremity ; the others lateral and bounding the dorsal area ; these latter are produced into an obtuse angle at the insertion of the wing-cases, and at these angles the diameter of the pupa is greatest, and diminishes thence rapidly to the pointed head, and gradually to the anal extremity ; the lateral outline is, however, slightly incurved behind the thorax ; the three ridges are very inconspicuous. Colour of the pupa bright apple-green ; the head and thoracic angles tipped with purple-brown, this colour extending from the head towards the thoracic hump, and from the thoracic angle towards the head ; the bulging mass containing the wing-cases is so transparent that the outline of the abdomen may be seen within ; the dorsal ridge is darker than the ground colour, forming a narrow, indistinct, smoke-coloured, medio-dorsal stripe ; the lateral ridge is paler than the ground colour, and forms a narrow, rather indistinct, whitish stripe on each side of the pupa. The pupa state lasts for twenty days ; the earliest examples, those from eggs laid on the 15th of April, may be expected to appear on the wing on the 15th of July. The sexes always keep apart during the remainder of the year, never taking the slightest notice of each other ; and both sexes enter on a state of semi-hibernation very early, being only tempted abroad by mild as well as sunny weather : in March they reappear, and the usual attention of the sexes takes place, followed by the deposition of eggs as already described : the imago life of this species sometimes lasts for an entire year, the tattered and faded butterflies of one year actually lasting until those of the ensuing year are on the wing : those, however, which appear in spring, although tolerably perfect, never have the exquisite freshness and beauty which they possessed when disclosed in the autumn. This beautiful insect, so common in the South of England, is rare in the North, and entirely absent from Scotland ; it has only been reported once from Ireland, and that by a non-Entomologist. I cannot conclude this somewhat

lengthy life-history without saying that for important particulars, as well as the larvæ and pupæ I have so carefully observed, I am indebted to my kind friends Mr. Doubleday and Mr. Buckler.—*Edward Newman.*

Description of the Larva of Argynnис Paphia (Silver-wash Fritillary). — The egg is laid towards the end of July, and sometimes as late as the beginning of August, on dead leaves, moss, or the living leaves of *Viola canina* (dog violet) and *Viola odorata* (sweet violet): the female, when engaged in the duty of oviposition, seeks out the shaded places under the brush-wood, while the male may be seen sunning himself and displaying his brilliantly fulvous wings as he rests on the blossoms of the bramble, from which he extracts his favourite food: the young larva, which is hatched in about fourteen days, appears quite black at first, but very soon exhibits the markings which are its characteristics when full-grown; indeed the fulvous stripe-like markings on both back and side are perhaps more strongly pronounced at this early period than subsequently when arrived at its full size. In September it descends towards the roots of the herbage, and there, as near as possible to the surface of the ground, spins a loose covering, apparently more for the sake of affording a sure hold for the claspers than for protection; and in this situation it passes the winter months, emerging and crawling up the petioles of its lowly food-plants as soon as the new leaves have made their appearance in the spring. It appears to be full-fed during the third and fourth weeks in May; at that period, if disturbed, it falls immediately from its food-plant, bending its head and leg-bearing segments under its body until they come in contact with its ventral claspers; but the terminal segments remain straight, and are not generally incurved. The head is somewhat scabrous, rather narrower than the 2nd segment, and most decidedly narrower than those which follow; the body is of nearly uniform substance, but slightly attenuated towards either extremity, having the incisions of the segments deeply and clearly marked: there are three spines on each side of each segment; each arises from a bulbous base, and is narrowed to a point at the distal extremity, emitting throughout its length a number of ascending bristles; two of these spines on the 2nd segment are longer and somewhat more slender

than the rest ; they are strictly dorsal, and are seated immediately behind the head, over which they are porrected. The colour of the head is black, delicately reticulated with brown, and having the crown of a still paler brown : body black, with two yellowish, approximate, dorsal stripes, each about equal in width to a medio-dorsal black stripe by which they are separated ; the sides are adorned with rust-coloured anastomosing lines, extending from spine to spine, in three longitudinal series ; all the spines, except two, are rust-coloured, but originate in the black area of the sides ; the two excepted are those which project over the head : these are also rust-coloured with black tips ; they originate in the yellowish dorsal stripes already described : the legs and claspers are smoke-coloured. Towards the end of May it attaches itself by the anal claspers to a slight silken coating it has previously spun on the stem of a bramble or the twig of some low shrub, and, suspended with head downwards, changes to an obese, humped and angulated pupa, having a divided or eared head, an elevated ridged thorax, and two rows of lateral abdominal tubercles, six in each row, and all having much the appearance of aborted spines, and being very evidently the representatives of the spines so conspicuous in the larva ; the two porrected spines on the 2nd segment are also accompanied by two tubercles just behind the head : the colour is gray, delicately reticulated with darker shades, and often adorned with spots and washes of the most brilliant and glittering metallic lustre. The perfect insect appears at the very end of June or early in July : I have always found the pupa in June. In making my description of this larva I have been greatly indebted to a most faithful coloured drawing from the inimitable pencil of Mr. Buckler, who has also most obligingly furnished me with the subjoined more precise information respecting the identical individual he has figured : — “ A single whitish egg was discovered, from a careful scrutiny of a small bit of moss at the foot of an oak in a wood, by the Rev. A. Fuller and a friend of his, who had previously observed a worn female settled on it. The egg was given to me early in August, and by the 1st of September, 1861, it hatched a small black larva, which fed on *Viola canina* until November, when I could no longer see it on the plant : it had previously been about three lines in length : a fine web

seemed drawn about the base of the stem of the plant, over the moss which was potted with it, under a glass cylinder, and placed in a sunny window: I cannot affirm that the web was spun by the larva. In April, 1862, it appeared again on the plant, about four lines in length, and continued to feed well; and on May 5th it had attained about an inch in length, when I took it out to figure, and to change the plant for another. On the 18th of May it had arrived at its full growth, when I took a second figure of it, and two days later it had attached itself to the side of the glass cylinder, and became a chrysalis, brown, with burnished gold spots; and the imago, a male, appeared on the 30th of June, 1862."—*Edward Newman.*

Description of the Larva of Vanessa C-Album (White C).—The egg is laid on *Humulus lupulus* (hop), in May, by females that may have hybernated, but of this I have no evidence, never having seen a hybernated butterfly of this species, which certainly appears three times during the year, namely, in May, end of July, and throughout September, and remains on the wing during the greater part of October: there is of course a probability that these autumnal insects hybernate. The larva is full-grown by the 10th of June, and then is obese in its form and slow in its movements. The head is slightly porrected, scabrous and furnished with two conspicuous compound spine-like horns, one of which originates in the upper middle of each lateral plate of the head; these horns are quinquefid at the extremity, one division pointing directly forwards, the others ranged round the base of the first and pointing in four different directions; the ocelli are crowded together at the mouth, and each stands at the extremity of a short pedicel. Body very stout; the 2nd segment no wider than the head; the 3rd and following segments twice that width, very robust, and the interstices between them very deep and clearly defined; the 2nd segment is without prominent spines, but has several minute bristle-bearing warts; it is black, with pale red-brown lines; these are somewhat transversely disposed on the back, but longitudinally on the sides: there are seven rows of strong branched spines on the body; four of these rows begin on the 3rd segment, the other three, namely, the medio-dorsal and the lowest on each side, begin on the 5th: the medio-dorsal

series consists of eight spines, and each medio-dorsal spine is slightly in advance of that next to it on each side; the other series of eleven spines each; the 12th and 13th segments have each but two spines. Colour of the face velvety black, but adorned with many paler markings, two of which, originating on the crown, pass obliquely down the face to each side the clypeus. General colour of the body gray, interspersed with red-brown; there is a broad medio-dorsal stripe of pure white, commencing on the 7th and ending on the 12th segment in an obtuse point; the last segment has also a large white spot on each side. Spiracles exactly intermediate in situation between the 2nd and 3rd lateral series of spines, black, surrounded with white, the white again with black, and finally the black with red-brown; the space below the spiracles delicately reticulated with gray; the spines which emanate from the white stripe are also white; those of the 3rd or lowest lateral series, also those of each series as far as the 6th segment inclusive, pale brown; those of the other lateral series from the 7th to the extremity, are white at the tips and pale brown at the base: ventral surface black, irrorated and reticulated with gray and red-brown: legs black and red-brown: claspers red and gray. When full-fed it spins a little hillock of white silk on one of the ribs or on the petiole of the hop-leaf, or on the stem of the hop-plant, or on the hop-pole, or even sometimes on a twig in a neighbouring hedge, and, attaching itself thereto by its posterior claspers, it hangs head downwards, and is transformed to an angulated pupa; the head is deeply notched, and the two horns or ears, containing the palpi, are distant, pointed and curved towards each other at the tips; the back of the thorax has a central elevation laterally compressed and very thin; the sides of the thorax have two blunt protuberances; there is a deep dorsal excavation between the thorax and abdomen; the back has three series of raised points, and on each side are two such series; the points on the medio-dorsal series are small and inconspicuous, those of the next series on each side large and prominent; the first of the lateral series is above, the second below, the spiracles; both are inconspicuous; the sides of the abdomen, at its junction with the thorax, are much bulged, making this the broadest part of the pupa; the anal segment is long and slender, and

terminates in a cluster of minute hooks, by which it is suspended from the web ; the colour is umber-brown, delicately reticulated with black lines ; on the back, in the depression between the thorax and abdomen, are three or more blotches of beautifully burnished silver. I am indebted to Mr. Wright for both the larva and pupa of this butterfly. — *Edward Newman.*

Description of the Larva of Satyrus Megaea (Gatekeeper). — This species is double-brooded : the eggs which produce the first brood of larvæ are laid on *Dactylis glomerata* and several other species of grass, at the end of May : the larva is full-fed about the middle of July, when it rests, by day, in a nearly straight position on a blade of grass, feeding chiefly by night. Head subglobose, exserted, wider than the 2nd segment, which is restricted in front. Body somewhat fusiform, gradually decreasing to each end, decidedly convex above, somewhat flattened beneath ; dorsal surface transversely wrinkled, the wrinkles dividing each segment into six sections, of which the anterior is the largest ; the body terminating in two parallel points directed backwards ; entire surface, both of head and body, covered with minute warts, which impart a scabrous appearance to the larva ; each wart emits a short bristle ; on each side below the spiracles is a decided but inconspicuous skinfold. Colour apple-green, the head and an indistinct narrow medio-dorsal stripe rather darker ; the latter appears to be little more than the food in the alimentary canal showing through the cuticle ; it is sometimes entirely absent ; a lateral stripe paler ; there is also a narrow and very indistinct stripe exactly intermediate between the medio-dorsal and lateral stripes ; the minute warts are generally, but not invariably, white ; the bristles either black or white ; the legs semitransparent and almost colourless ; the claspers concolorous with the body ; the anal points tipped with pink. Changed to a pupa, suspended by the tail, on the 14th of July ; this was rather obese ; the head truncate, broadly emarginate, the angles almost right angles ; thorax dorsally humped and keeled, laterally angled at the base of the wing-cases ; dorsal surface of abdomen with a lateral series of six points on each side. Colour apple-green ; the angles of the head, the lateral and dorsal angles of the thorax, and five equidistant raised dots on each side of the

dorsal surface of abdomen, white tinged with yellow. The butterfly appeared on the 29th of July. I am indebted to Mr. Buckler for specimens of these larvæ.—*Edward Newman.*

Description of the Larva of Satyrus Hyperanthus (Ringlet).—This species has but one brood in the year. The egg is laid singly, in July and August, on several species of grass, of which *Milium effusum*, *Aira cæspitosa*, and *Poa annua* have been more particularly observed, but *Triticum repens* is the species which the specimen described below selected, by preference, for food in confinement. It attains but a small size during the autumn, and hibernates at the roots of the various grasses on which it feeds, but crawls out and begins feeding again very early in the year, and by the end of March is often half-grown; it feeds during the night, and cannot readily be found, unless diligent search be made with a lanthorn among the long grasses so commonly growing along our hedgerows and ditches, more especially in the neighbourhood of woods. The individual specimen which I have described was full-fed on the 4th of July: it then rested in a straight position, was very quiescent, and indeed exhibited a great reluctance to motion of any kind: when disturbed it fell off its food-plant, feigning death and assuming a crescentic form, but the two extremities never touched; in this form it secretes itself at the roots of grasses, and does not reascend until the apprehended danger has past. Head exserted, wider than the 2nd segment, covered with minute bristle-bearing warts, which make it rough and scabrous: body fusiform, the sides dilated, the dilatation fringed with strong bristles; the anal extremity terminating in two points directed backwards; the dorsal surface wrinkled transversely, each segment being thus distinctly divided into sections. Colour of the head pale wainscot-brown, each cheek having three slightly darker but faint broad stripes; ocelli crowded together and intensely black: body very pale wainscot-brown, with a medio-dorsal darker stripe, in which are still darker and obscurely quadrate spots at the interstices of the segments; from the 10th segment to the 13th, both inclusive, the medio-dorsal stripe is continuously of the darker brown; the lateral dilated skinfold is almost white; the spiracles intensely black; the rest of the dorsal surface is marked with very irregular brown lines. Towards the end of June it attaches itself

by the anal claspers, and, hanging with its head downwards, is transformed into a short and very obese pupa, the head of which is rounded and undivided; the anal extremity, that is, the 13th segment only, very attenuated and flattened, the extreme tip still narrower, slightly incurved, and terminating in a row of minute hooks, by means of which it adheres to a slight web which the larva had previously spun, and from which it had suspended itself. The colour of the pupa is pale wainscot-brown, with a semitransparent appearance in the wing-cases, which, as well as the antennæ, are delicately clouded and reticulated with darker brown; the dorsal surface is also delicately dotted with brown, as well as having larger spots methodically arranged; a pair of these, transversely elongate, but arranged longitudinally, form an almost medio-dorsal series on each side of each segment. The butterflies continue to emerge from the 1st of July to the end of the month, and also in the first and second weeks in August. I am indebted to Mr. Doubleday for the larva and pupa from which my description has been made.—
Edward Newman.

Description of the Larva of Chortobius Davus (Marsh Ringlet).—The egg is laid in July, on the setiform leaves of *Rhynchospora alba* (beak-rush), and the larva emerges in fourteen days or less, according to the temperature. Head semi-globose, wider than the body, slightly notched on the crown, beset with minute hairs; body linear, its sides almost parallel, but slightly and gradually attenuated towards the anal extremity, which terminates in two points directed backwards; dorsal surface transversely and regularly wrinkled, the wrinkles dividing each segment into sections, and covered with minute warts, which under a lens give the surface the appearance of extremely fine shagreen. Colour of the head dingy semitransparent green; the ocelli very prominent and intensely black: colour of the body dingy green, with five narrow, equidistant, distinct, purple-brown stripes; the interspace between the 2nd and 3rd stripe on each side is intersected by a very narrow and indistinct stripe, almost similar in colour to the other five, and the exterior purple stripe on each side is bordered below by a pale glaucous, almost white, stripe, extending throughout its entire length. At the end of August these little larvæ ceased to eat, and

secreted themselves among the roots of their food-plant. I am indebted to Mr. Hudson, of Bawtry, for the opportunity of making this description.—*Edward Newman.*

Entomological Notes, Queries, Captures and Duplicates.

18.—*Larva and Pupa of Ripiphorus paradoxus.*—Both Coleopterists and Hymenopterists will doubtless feel interested in the announcement that the discovery of the larva and pupa of the above parasite has at length been made. On Saturday morning last I was fortunate, on opening a cell contained in a nest of *Vespa vulgaris*, in discovering a larva of *Ripiphorus* in the act of consuming the spun-up larva of the wasp to whose body it was firmly adhering. It had not then made much progress in the work of destruction, but in the course of the following forty-eight hours it entirely consumed its victim, with the exception of the skin and mandibles. From other cells in the same nest I obtained pupæ of the parasite as well as specimens of the perfect insect.—*S. Stone; Brighthampton, Witney, August 23, 1864.*

19.—*Multitudes of Syrphus Pyrastri in the Isle of Wight.*—Could you, through the medium of the 'Entomologist,' tell me the name of the insect which I enclose? They have swarmed about here for the last week, and no one seems to know anything about it. In a walk along the coast yesterday I saw hundreds lying on the beach, all dead, with one exception. This has further strengthened my idea that they have migrated here. It would be interesting to know if any of your correspondents in other parts of England have seen them. I found those which I have mentioned lying between Blackgang and Atherfield.—*William Gibson; Parkhurst, Isle of Wight, August 21, 1864.*

20.—*Multitudes of Syrphus Pyrastri in the Isle of Wight.*—Although no Entomologist, I cannot fail to be struck by the myriads of peculiar flies which have been, during the whole of this week, and still are, swarming about here, and, so far as I can learn, pretty generally along the neighbouring part of the southern coast. They are apparently of two species. Specimens of them both I beg to enclose you. I find them everywhere; in the greatest quantities, however, on the

sea-shore. Here, too, they are still more tame than elsewhere, though they can at any time be easily caught with the hand. Their being found in such great numbers on the sea-shore gives one the idea of their having come from other climes, by the action of the "wondrous instinct" of migration. I have noticed that, when in flight, they go all of them in the same direction, *viz.*, from south to north. This also has been noticed and observed to me by others. They settle, when their fate leads them to gardens, on flowers of all kinds, seeming to have no great preference for any. At the moment of writing their numbers are somewhat thinner, but on the first three days of this week they were quite a pest. I found hundreds of them yesterday, on the shore near Blackgang, lying dead, killed, I imagine, by some rather cold winds which we have lately been having. They have, I find, a partiality for the fruit of the fig-tree, which, however, they do not, so far as one can observe, attack themselves, but, entering the excavations caused by the wasps, they join in the feast.—*C. E. Seaman; Northwood, Isle of Wight, August 20, 1864.*

[Mr. Rogers and several other residents in the Isle of Wight have sent still more extraordinary statements of the multitudes of these flies: all that have reached me are referrible to three species—*Syrphus Pyrastri*, *S. topiarius* and *S. balteatus*. Entomologists need scarcely be told that the larvæ of these species feed entirely on *Aphides* or plant-lice, and that the extraordinary number of *Syrphi* only corresponds with the enormous multitudes of *Aphides* which the past dry summer has called into existence.—*E. Newman.*]

21. *Note on Euplexia lucipara*.—The eggs are white, and are generally laid on the back of some leaf, mostly in a long row on the back fibre; the eggs from which the specimen I send you were bred were laid on the back of a primrose-leaf; I found them on the 24th of June, and they emerged on the 4th of July: the larvæ were fed on groundsel and whitethorn: they go down generally in September, the pupa being subterranean and enclosed in a brittle earthen cocoon, from which the perfect insect escapes the first week of the June following: the larva also eats both the common species of plantain, as well as sallow, dandelion, &c.—*John S. Dell; 121, Navy Row, Morice Town.*

[This information is supplementary to my description of the larva, at page 7288 of the 'Zoologist.'—*E. Newman.*]

22. *Age of the Larva of the Goat Moth.*—To what age does the larva of the goat moth (*Cossus ligniperda*) live, and does the period of its existence vary?—*William Gibson; Parkhurst, Isle of Wight.*

[The usual period assigned by Entomologists to the life of the goat moth is four years, but I am not aware that this has been tested by observers of sufficient accuracy.—*Edward Newman.*]

23. *Sex of Larvæ.*—Is it possible to tell the sex of the future moth or butterfly in the larva? What are the signs?—*William Gibson.*

24. *Peculiarity in the Structure of Chelonia caja.*—I should like to ask if it has been before observed that between the back of the head and the thorax of *Chelonia caja* are two valvular openings, from which the insect can eject a strong-smelling acidulous fluid. This is best seen directly after the female has left the pupa, when, if you touch her, she bends the head between the fore legs, and at the same time lifts the two valves, exposing a band of bright scarlet hair, which partly conceals the openings. From these exude two small drops of clear fluid, smelling very much like a strong decoction of nettles, and turning blue litmus red. May not the strong scent thus given out be the means by which the females of many Lepidoptera attract the males?—*Henry Moncreaff; Southsea, August 24, 1864.*

25. *Ophiodes lunaris in Ireland.*—It is reported that this rarity has been captured in the South-west of Ireland, by that indefatigable collector Mr. Peter Bouchard.

26. *Nonagria neurica at Horning Fen.*—It is reported that the true *Nonagria neurica* of Hübner has been taken at Horning Fen. The insect which stands under this name in our cabinets appears to be *Nonagria Arundineti* of the Continent.

27. *Note on Ephyra pendularia.*—After reading your opinion of *E. pendularia* (Entom. 17), I think I can throw a little light on the subject. I took two larvæ of *E. pendularia* off birch in September, 1863, and the perfect insects appeared, one on the 22nd of April, 1864, and the other on the 4th of May. I also took a full-fed larva on the 27th of June,

1864. It went into the pupa state on the 2nd of July, and appeared in the perfect state on the 25th. I have all three specimens in my possession, and I cannot see any difference as regards the size and colour.—*W. West* ; 6, *Green Lane, Royal Hill, Greenwich*.

28. *Beautiful Variety of Callimorpha dominula*.—Mr. H. J. Harding, of Deal, has captured a very extraordinary variety of *Callimorpha dominula*, in which all the usual gay markings are absent; the uniform colour of the insect being steel-blue approaching to black.

29. *Toxocampa Craccæ in Devonshire*.—The Rev. Edward Horton, of Lower Wick, Worcester, is again the fortunate captor of this interesting addition to our lepidopterous fauna: he has distributed these rarities with his accustomed liberality.

30. *Food-plant of Ino Geryon*.—The larva of this species, found by the Rev. E. Horton feeding on *Helianthemum vulgare* (sun cistus), has been tried with *Rumex acetosella* (sorrel), the food of its congener, *I. Statices*, and is found to refuse that plant: since, therefore, each species confines itself exclusively to its peculiar food-plant, there seems good reason for supposing them permanently distinct.

31. *Entomological Society, August 1, 1864*.—Mr. Bond exhibited *Gelechia pinguinella*, a species new to Britain, found on the trunks of poplars near London; and a specimen of *Nyctegretes achatinella*, one of the rarer British *Phycidæ*, captured by Mr. Thomas Brown near Yarmouth. Mr. Weir exhibited an albino variety of *Eubolia bipunctaria*, caught on the South Downs. Mr. M'Lachlan exhibited a specimen of *Libellula striolata*, from Montpellier, having the veins at the basal part of the anterior wings covered with specimens of a red species of *Acarus*. Prof. Westwood remarked that the *Acari* had probably taken up their position for the purpose of sucking some fluid matter, which went to show that the wing-veins were not (as had been supposed) mere horny matter, not containing fluid. Mr. Smith doubted whether the *Acari* had placed themselves on the wing-veins in search of food or suction; humble-bees were often covered with these insects, and 300 or 400 *Acari* might be found on a single specimen, so that the humble-bee actually fell to the ground through their weight; he thought that the *Acari* fed

on the comb, and crawled upon the body of the humble-bee when within the nest, and so were carried out. The presence of Acari on the dung-beetles (*Geotrupes*) also was notorious. Mr. Edwin Shepherd referred to the frequent occurrence of Acari on butterflies, and thought they were picked up from the flowers which the butterflies visited.

32. *Sesia Scoliaformis*.—I am rejoiced to say that this beautiful species has been again taken in North Wales; all fear of its being exterminated has therefore vanished.

33. *Food-plant of Coremia unidentaria*.—In No. 4 of the 'Entomologist's Monthly Magazine,' Mr. D'Orville, of Alphington, near Exeter, one of our most assiduous and accurate observers, writes, in reference to my life-history of *Coremia unidentaria* (Entom. 19), that in his neighbourhood the larva gives the preference to *Glechoma hederacea* (ground ivy). He further states that both this species and *C. ferrugata* are double-brooded; and further, that he believes the two species perfectly distinct, never running the one into the other, but remaining true to the parent.

34. *Duplicates*.—Mr. Birchall has kindly sent me, for distribution, duplicates of the following very local Lepidoptera:—*Zygæna Minos*, *Nyssia zonaria*, *Closteria anachoreta*, and *Bankia argentula*. As the number of these duplicates is limited, and as no favour will be shown in their distribution, it will be necessary to make early application, in order to secure them. I must repeat that I cannot transmit them by post.—*Edward Newman*; 9, Devonshire Street, Bishops-gate, September, 1864.

At Home.—I shall have pleasure in receiving the visits of Entomologists, as usual, from 6 to 9 o'clock on the following Fridays,—October 7th, 14th and 21st,—at No. 7, York Grove, Queen's Road, Peckham.—*Edward Newman*.

☞ It is intended to publish No. 7 of the 'Entomologist,' with a longer list of duplicates, on the 14th of October; and life-histories of *Chortobius Pamphilus*, *Nemeobius Lucina*, *Polyommatus Hippothoë*, *P. Phlaëas*, *Phragmatæcia Arundinis*, *Zeuzera Æsculi*, &c., &c.

THE ENTOMOLOGIST.

No. 7.]

OCTOBER 14, MDCCCLXIV.

[PRICE 6D.

Description of the Larva of Chortobius Pamphilus (Small Heath).—The eggs are laid on *Nardus stricta* and several other species of grass, in May and June; the larva emerges in fourteen or fifteen days, and is full-fed in about thirty days, or at the end of July: it then rests in a perfectly straight position, reposing on the stalk of the grass. Head subglobose, slightly broader than the 2nd segment: body somewhat fusiform, gradually attenuated towards the anal extremity, where it terminates in two short points directed backwards; dorsal surface of each segment divided transversely into narrow sections, and these sections, being covered with minute scabrous points, give it the appearance of being finely shagreened. Colour of the head opaque green, the mouth and ocelli almost black; body delicate apple-green, with a clearly defined and moderately wide medio-dorsal darker stripe, bordered on both sides by a narrow paler stripe; on each side, and including the spiracles, is a broader and less clearly defined dark green stripe, bordered towards the ventral surface by a narrow but very distinct bright yellow-green stripe; the spiracles are wainscot-brown, and each emits towards the head a faint nebulous paler line, reminding one of the tail of a comet; about equidistant from the dark medio-dorsal stripe and the yellow-green subspiracular stripe, is a third stripe of two tints, its dorsal margin dark green, its ventral margin yellow-green; anal points pink; legs tinged with pink; claspers concolorous with the ventral surface. When full-grown my larva spun a little band of white silk round a stalk of *Polygonum aviculare*, and, suspending itself therefrom by the anal claspers, changed to an obese pupa, suspended by cremastræ: the head broadly truncate, the thorax dorsally rounded, the colour vivid apple-green, delicately irrorated with white dots; costa of wing-cases with a double stripe, the outer portion purple-brown, the inner white. I am

indebted to Mr. Buckler for specimens of this larva.—*Edward Newman.*

Description of the Larva of Polyommatus Hippothoë (Large Copper).—The egg is laid on the leaves of *Rumex hydrolapathum* (great water-dock), during the month of August, and the young larvæ (never, to the best of my belief, observed) probably emerge during the following month, and hibernate very early at the base of the petioles, a situation in which they would be particularly liable to injury, and indeed destruction, from the long-continued floods of such frequent occurrence in the aqueous districts, which constituted the sole English habitats of this brilliant butterfly. The larva is full-fed in June, and then lies flat on the dock-leaf, rarely moving from place to place, and, when it does so, gliding with a slug-like motion, the legs and claspers being entirely concealed. Head extremely small, completely withdrawn into the 2nd segment; body with the dorsal surface convex, the ventral surface flat; the divisions of the segments are distinctly marked, the posterior margin of each slightly overlapping the anterior margin of the next, and the entire larva having very much the appearance of a Chiton; the sides are slightly dilated; the legs and claspers are seated in closely approximate pairs, nearly on a medio-ventral line. Colour green, scarcely distinguishable from that of the dock-leaf; there is an obscure medio-dorsal stripe, slightly darker than the disk, and in all probability due to the presence of food in the alimentary canal. Pupa obese, blunt at both extremity, attached by minute cremastræ at the caudal extremities, and also by a surcingle round the waist: the exact duration of the larval and pupal states not observed; the butterfly appears on the wing in August. Formerly abundant at Whittlesea Mere, in Cambridgeshire, and Yaxley Fen, in Huntingdonshire, but not observed for many years, and now generally supposed to be extinct in Britain. My acquaintance with the larva and pupa was made very many years ago, in Mr. Doubleday's garden at Epping, where the very plant of *Rumex hydrolapathum* on which the larvæ fed is still in existence.—*Id.*

Description of the Larva of Phragmatæcia Arundinis.—Throughout the month of June, and also in the beginning of July, the eggs are laid, singly, by the extraordinary-

looking and long-bodied female, on the stems of *Arundo Phragmites* (reed); they are long, cylindrical, of a pale yellow colour, and adhere very tightly to the stem of the reed. As soon as the young larva emerges it begins to gnaw its way through the green leafy sheath, and also through the hard woody covering of the stem, reaching the interior by a puncture scarcely larger than that which might be made by an entomological pin, and only distinguishable on the exterior by the eye of an expert, who may detect a few minute grains of excrement around the mouth of the puncture. When once within the stem it works out of sight, making a complete hollow of the interior. The specimens kindly placed at my disposal had the head upwards, but I will not venture an opinion as to this being always the case: in no instance within my knowledge have two larvae been found in one reed-stem: when full-fed, which is during the third or fourth week of the following May, the larval state having endured ten months, it appears closely fitted to the channel it has excavated, and is then an elongate maggot, with a small, flattish, porrected head, capable of being withdrawn and almost concealed in the 2nd segment, which has on its dorsal surface a corneous plate, perfectly smooth and glabrous in front, but furnished behind with raised points, of which a first transverse and perfectly regular series bounds the smooth portion, and a second equally regular series is situated a short distance behind the first; behind the second transverse series the points are less prominent and very irregular; the body is very long, attenuated towards the posterior extremity, and without warts or tubercles. Colour of the head, as well as the dorsal surface of the 2nd segment, clear bright brown, and very glabrous: the remainder of the body may be characterised as cream-coloured. Before changing to a pupa it gnaws away the walls of its dwelling, leaving them in several places with scarcely the thickness of tissue paper, and, having thus provided itself with facility of escape, it ceases to feed, and remains perfectly quiescent until the metamorphosis has taken place: the pupa is long, brown and cylindrical, every segment being furnished with a double row of hook-like scabrosities (*adminicula*), by means of which it travels up and down the interior of the reed with the most remarkable velocity. The pupa state scarcely lasts more than a fortnight,

when the moth makes its appearance through the weakened part of the reed-stem which I have mentioned as previously prepared for its exit: the female remains with its long pendant abdomen parallel to the stem until sought by the male, when union takes place before the female has left her birth-place. I am indebted to Mr. Brown, of Cambridge, for the opportunity of describing this interesting larva.—*Edward Newman.*

Description of the Larva of Zeuzera Æsculi (Wood Leopard).—The eggs are laid by the female, remarkable for her long telescopic ovipositor, so well adapted for the purpose, in crevices of the bark of trees of a great number of species, on the solid wood of which the larva feeds, and, in the case of younger trees or shoots, before the bark acquires rugosity, just above the cicatrix, whence a leaf of the previous season has fallen. The trees more particularly affected by this beautiful moth are apple, pear, plum, elm and ash: the larva, on emerging, enters the bark and solid wood by an aperture so minute that it can only be detected by a little mass of sawdust-like excrement which generally clings about the entrance. In the young shoots of ash cultivated for making hop-poles, its proceedings have been carefully observed by Mr. Jenner, of Lewes, who ascertained that in one plantation alone the loss by its ravages, in 1862, exceeded a thousand pounds: this accurate observer found that the little grub, having entered as described, ascends the stem as far as the next cicatrix, the excavation thus made assuming the shape of a very acutely pointed inverted cone; but when arrived opposite the cicatrix, which is probably accompanied by some node in the interior, it turns round on its own track, and descends to the point whence it started, devouring the wood and widening the gallery in its progress. When the larva has arrived at this point the figure of the gallery has entirely changed; it is now a smooth cylindrical bore, at the lower extremity of which it gnaws the wood away, making a convenient chamber for its transformation, and having the exterior cuticle reduced to the thinness of tissue paper. It is now full-grown: the head is small, capable of being partially withdrawn into the 2nd segment; the dorsal surface of the 2nd segment has a large, corneous, glabrous, semicircular plate, truncated in front, but convex behind; the hinder

margin, in some degree elevated, and overlapping the dorsal surface of the 3rd and 4th segments; its posterior margin scabrous, and armed with a number of acute points arranged in series; the series nearest the head is composed of fewer, but larger, points, those nearer the posterior margin being more numerous, but much smaller, and the series more extended: each of the segments, from the 4th to the 11th, both inclusive, have four small and nearly circular, glabrous, corneous plates, the anterior pair approximate, the posterior pair more distant; on each side of each segment are two other such plates, one above the other, below the spiracles; and again, below the lower of these on each side, is a smaller and less conspicuous plate; on the 12th segment are the same number, but arranged in an irregular transverse series, behind which are still two other smaller plates; each of these circular plates emits a bristle; the 13th segment is divided into two sections, the anterior section narrow and transverse, the posterior section or anal flap obtusely triangular and highly glabrous; both these emit several bristles. Colour of the head dark brown, paler on the crown; corneous plate on 2nd segment dark glabrous brown, with a pale median line, and paler also on the anterior margin and on the sides behind; all the other plates are black-brown and highly glabrous; the ground colour all over the body dingy white, with a yellow tinge; the alimentary canal, showing through the transparent skin, has the appearance of a narrow, mediodorsal indistinct stripe; ventral surface dingy white, tinged with flesh-colour; legs and claspers the same. In the chamber which the larva has prepared, it changes to a pupa of a brightish red-brown colour, and having every segment of the abdomen armed with circles of minute hooks. The moths appear from the 1st of July to the end of the month, coming into the world with their head downwards. In every instance where a shoot of the ash is tenanted by one of these larvæ, it dies from the spot occupied by the larva to the tip, and becomes utterly useless: the injury it occasions to fruit trees is not so extensive; on the contrary, its attacks often appear to render a tree more fruitful; but I have frequently made the observation that an inordinate propensity to produce fruit often arises from a deficiency of that vigour which promotes rapid and healthy growth; thus unwonted production of

fruit or flowers is often indicative of internal weakness and premature old age.—*Edward Newman.*

Description of the Larva of Eupithecia subumbrata.—I see that the larva of *Eupithecia subumbrata* is described as unknown in Stainton's 'Manual.' Probably it has long since been discovered. If it has not, I write to say that I bred the insect from a larva taken on *Senecio Jacobaea* (ragwort), on ground where I had frequently taken the perfect insect. The larva is easily described, as it was wholly destitute of any markings or lines. It was unusually slender for a *Eupithecia*, and of a uniform pinkish buff or flesh-colour.—*W. O. Hammond; St. Alban's Court, near Wingham, Kent, September 30, 1864.*

Description of the Larva of Epunda nigra.—I have this morning bred *Epunda nigra* from a larva taken in June last, at Bournemouth. The food-plant was a very fine and dwarf grass, growing on peat: I do not know the botanical name. The larva differed altogether from Stainton's description. It was smooth, rather thick; head light brown; body a red-brown, inclining to violet; dorsal line and subdorsal lines very narrow, pale lemon-yellow; spiracular line broad, pale lemon-yellow, edged above with dark brown or blackish, shaded off into the ground colour.—*Id.*

Entomological Periodicals.

The 'Entomologist's Monthly Magazine.'—No. 3 contains the following papers:—"Varieties of Lepidoptera and their causes, by R. C. R. Jordan, M.D." "New Species of Butterflies from Guatemala and Panamá, by H. W. Bates:" ten species are described, and eleven species in No. 4, where the paper is continued. "Descriptions of the British Species of *Stenus*, by E. C. Rye:" twelve species are described: continued in No. 4, where seventeen species are described. "Notes on Collecting Lepidoptera, by H. Guard Knaggs, M.D.:" continued in No. 4. "Capture of *Phytometra ænea* and *Eupithecia lariciata*, by Dr. Battershell Gill." "Descriptions of the larvæ of *Tethea subtusa* and *Thera conifera*, by the Rev. J. Greene." "Cidaria sagittata bred; Habits and Description of the Larva of *Lozogramma*

petraria; Habits and Description of the Larva of *Acidalia immutata*; Note on *Acidalia promutata*, by the Rev. J. Hellins." "Captures on the Cotswolds, by W. Farren White." "Captures in the Neighbourhood of Wandsworth, by G. B. Longstaff." "Stauropus Fagi near Aylesbury, by W. E. Parsons." "Chærocampa Porcellus in Gloucestershire, by the Rev. E. Hallett Todd." "Eupithecia tripunctata, by H. D'Orville." "Habits of *Madopa salicalis*, *Eupœcilia ambiguana*, &c., by C. G. Barrett." "On the re-appearance of some Lepidoptera unnoticed since the year 1860, by George Gascoyne." "Coleoptera near Lowestoft, by E. Saunders." "Nemosoma elongata, by V. C. de Rivaz." "Occurrence of *Cordulia arctica* in Ireland, by R. M'Lachlan." And "Proceedings of the Entomological Society of London:" continued in No. 4.

No. 4 contains:—"Descriptions of two New Species of *Gelechia*, and a new *Coleophora*, &c., by G. G. Mühlig; translated from the 'Stettiner Entomologische Zeitung,' Nos. 1 and 3, 1864, pp. 101—3, by Alice A. Douglas." "Reminiscences of an Excursion up the Demarara River, by B. Piffard." "Coremia ferrugata and unidentaria, by H. D'Orville:" (see Entom. 88). "Thatch, by C. G. Barrett." "Eupithecia lariciata, by Henry Doubleday:" (see Zool. 9254). "Larva, Pupa and Food of *Eupithecia pulchellata*, by the Rev. H. H. Crewe:" (see Zool. 9253). "Notes on the Habits of *Toxocampa Craccæ*, by the Rev. E. Horton." "Acidalia rubricata near Brandon, by Frederick Bond:" (see Entom. 70.) "Description of the Larva of *Zeuzera Æsculi*, by Dr. Hearder."

It will be observed that many of the facts noticed are published simultaneously in *this Journal* and in the 'Zoologist'; this is the case with those communications which have more immediate interest for British Entomologists,—a result that cannot be avoided: other papers, on the other hand, will never appear in duplicate, such for instance as the nine pages, in No. 4, devoted to exotic Entomology, and the seven pages, in the same number, occupied by descriptions of *Steni*. Few remarks are required from my pen, each subject commanding itself to notice: with regard to exotic Entomology, so ably handled by my friend Mr. Bates, I sincerely hope he will continue, and increase the extent of, his communications; it

is exceedingly desirable that the descriptions of the treasures he has obtained in Amazonia should see the light as early as possible, and thus the priority in names be secured to the naturalist by whose industry these novelties have been obtained. With regard to Dr. Knaggs's paper, its utility will be admitted by all: it is indeed difficult, very difficult, to make any addition to the ample instructions given by Mr. Greene in his invaluable 'Insect Hunter's Companion,' but Dr. Knaggs has had great experience in the craft, and has introduced several new suggestions: on the other hand, he has allowed many particulars to escape him; thus, in his instructions for egg-hunting, he makes no mention of the now universal practice of watching the female in the act of oviposition, and securing the prize as soon as deposited. It is a delightful task to watch the females thus employed, and one with which every Lepidopterist is familiar.

'*Young England.*'—The August number contains "Notes on the Apamidæ," anonymous. "The Cicada, by Bernard Piffard." "Larva of the Emperor Moth, by M. Merryweather." "Eye of the Psocus." "How to find the Larvæ of Nonagria Typhæ, by Howard Vaughan." "Captures at Herne Bay in Whitsun week, by A. G. Butler." "Extraordinary Captures near Westbury, by Dr. Williams:" (see Entom. 71). And "Captures by W. Watson." Two of the records of captures are mere lists of Latin words: I do not perceive their utility, and shall always decline to publish any such in the 'Entomologist.'

The September number contains:—"Notes on Noctuæ." "Bolitobia fuliginaria, by Howard Vaughan:" (see Entom. 70). "Polyommatus Corydon at Hampstead, by J. Russell." And "Captures near London, by Dr. Williams," among which are enumerated Papilio Machaon in the woods at Highgate! Argynnis Euphrosyne and A. Adippe near Camberwell! Lastly, a reprint of the very amusingly erroneous papers which have lately appeared in the 'Times,' under the signature of "A Bee-master." I hope no foreign Entomologist will chance to see these productions.

'*The Naturalist.*'—This journal has but little Entomology: Botany seems to be its leading feature. A list of the

names of Lepidoptera occurring in Perthshire, by F. B. W. White, is the leading contribution in Entomology : from this we learn that *Acronycta Psi*, *Mamestra Brassicæ*, *Agrotis exclamationis*, *Triphaena pronuba*, *Cerastis Vaccinii*, &c., &c., are found in Perthshire : their absence would have been remarkable ; their presence certainly is not. Wherefore should it be recorded ?

Entomological Notes, Queries, Captures and Duplicates.

35. The reimbibition of Fluid ejected by Tortrix Larvæ.

—Mr. Gascoyne, in No. 5 of the 'Entomologist' (Entom. 69) has done me the favour to confirm my statement of the above fact, with the additional information that the habit is not peculiar to the Tortrices, he having observed it in larvæ of Bombyces and Geometræ. But that gentleman thinks that it is "confined to cases where the fluid has not been projected, but has remained attached to the head." That this is not the case I can assure him, having often applied the mouth of a larva to the fluid it had before ejected and left, when it would remain with its head in the position I had placed it until all the moisture was sucked up. This I did in the belief that the fluid was the chylaceous or nutritious juice of the larva, and therefore was anxious that it should not be lost. Some larvæ eject it in abundance and upon the slightest disturbance, while others I have never seen do so under any provocation. In all cases I believe it is emitted as a means of defence against a real or imaginary aggression. With respect to the colour of the fluid, subsequent observation has shown me that there is little relation between that and the colour of the larva. The colour of the juice will, it is probable, be modified by that of the food-plant.—*John Peers* ; 64, *Buttermarket Street, Warrington, September 2.*

36. Peronea permotana at New Brighton.—I have the pleasure of recording the capture, at New Brighton, on August 16th, of above thirty fine specimens of *Peronea permotana*. Enough for myself and some for my friends.—*Id.*

37. Gonepteryx Rhamni in Ireland.—I observe you speak hesitatingly of the occurrence of this beautiful insect in Ireland (Entom. 76). I am happy to be able to remove the

doubt: I saw it on the wing at Killarney on the 10th of August last. The locality is a valley at the base of Mangerton, which is crossed by the footpath up the mountain from Clogheren, about a mile from the village.—*Edwin Birchall; Birkenhead; October 2, 1864.*

38. *Hybernation of Vanessa C-Album.*—Your accounts of the butterfly larvæ, in the October 'Entomologist,' are very interesting. I am glad also to be able to satisfy you as to the hybernation of *Vanessa C-Album* in the perfect state. As it is common here, I have opportunities of watching it, and I have for several years seen hybernated specimens on fine sunny days in early spring, showing by their faded appearance that they were not fresh from the pupa. The larvæ will eat the black currant as freely as the hop.—*E. Horton; Lower Wick, Worcester, October 4, 1864.*

39. *Hybernation of Vanessa C-Album.*—Since I printed my life-history of this butterfly, I have received no less than fifty specimens of the pupa from a kind friend at Leominster, where the species is very abundant: most of these were found suspended from the hop itself; in one instance two from a single hop, presenting a curious and beautiful spectacle; others from the petiole of the hop; and others from the leaf or petiole of the black currant: the first butterfly emerged on the 24th of September, and they have continued to make their appearance every day from that time to the present: they sit motionless in the breeding-cage, and exhibit every symptom of intending to hyberate.—*E. Newman.*

40. *Parasites upon Wasps.*—In a nest of *Vespa vulgaris* I lately found not only the larva and pupa of the coleopterous parasite, *Ripiphorus paradoxus*, as already recorded (Entom. 84), but also larvæ and pupæ of a hymenopterous one, *Anomalon Vesparum*, and eggs and larvæ of a dipterous one, *Volucella pellucens*. Intermixed with the cocoons spun by the larvæ of *Anomalon Vesparum*, were those of a much smaller species of *Ichneumon*, which may possibly prove to be new; at any rate I am not aware that one of this size has been described as an inhabitant of wasps' nests. Whether the smaller species is a parasite upon the larger, I am unable to say.—*S. Stone; Brighthampton, near Witney, October 1, 1864.*

41. *Locusts in Cornwall.*—I have received two specimens of the locust (*Gryllus migratorius*), out of five, all captured

together on some of the highlands in this district; and I have received well-authenticated intelligence, but without specimens, of the capture of several others in the withy-beds between this place and Marazion. I see a statement in some of the daily papers that locusts have appeared in great numbers in the western counties, and have damaged the cabbage and brocoli crops. I suppose the first part of the statement may be correct, but, so far as this neighbourhood is concerned, the second is not. Our brocoli crop and all other crops of a similar nature are suffering most severely from the ravages of a greenish caterpillar, of the species of which I am not informed. These, and not the locusts, are devouring every green herb that grows on the face of West Cornwall.—*Thomas Cornish; September 17, 1864.*

[On receiving this information I immediately wrote to Mr. Cornish, begging for a supply of the green caterpillar that was doing so much injury, and was rather surprised to find it the too familiar larva of *Pieris Brassicæ*. On the subject of the locust I incline to say that I have never seen a well-authenticated British specimen of *Gryllus migratorius*. I shall therefore feel extremely obliged for specimens; should they prove to belong to any other species, I shall have much pleasure in publishing the correct name.—*E. Newman.*]

42. *Note on Cynips lignicola.*—At the top of Highgate Hill there are two little oak trees side by side, with their branches in contact. One appears to be quite healthy, is covered with acorns, and has no Devonshire galls upon it. The other is sickly, is covered with Devonshire galls (*Cynips lignicola*), and has not an acorn upon it. I hope to be able to notice their respective appearance next September.—*F. Walker; September 22, 1864.*

43. *The Artichoke Gall.*—Will you have the goodness to explain the curious substances enclosed, growing, as you see, on an oak-twig, and consisting of a small green nucleus and a scabrous covering, enclosing setaceous segments between the exterior covering and the nucleus? On opening the crown a maggot rushed out, and, wriggling backwards, hung from my hand suspended by a thread. I enclose it in cotton wool.—*C. Seymour.*

[The so-called maggot is apparently the larva of a *Tortrix*, and I believe quite innocent of fabricating the gall: I have

heard it suggested that the green nucleus is the acorn atrophied, the scabrous and setaceous envelopes the cup considerably metamorphosed.—*E. Newman.* This form of gall is called the artichoke gall, and is produced by *Cynips Fecundatrix* of Hartig. I have not been able to rear the fly; I believe it changes in the earth.—*Francis Walker.*]

44. *Acari on the Wings of Triphæna pronuba.*—I took a specimen of *Triphæna pronuba* the other day with no less than fifty-one small red Acari attached to the wings.—*Rev. E. Hallett Todd; Burford, Oxfordshire, September 16.*

[These Acari have been very abundant on the wings of insects this year: at a late Meeting of the Entomological Society, Mr. M'Lachlan exhibited specimens on the wings of *Libellula striolata*, when Professor Westwood remarked that the Acari had probably taken up their position for the purpose of sucking some fluid matter, *which went to show that the wing-veins were not* (as had been supposed) *mere horny matter not containing fluid*: Professor Westwood must have known, but had probably forgotten, that Dr. Bowerbank, in the 1st volume of the 'Entomological Magazine,' clearly proved that the wing-bones or wing-rays of insects contained delicate blood-vessels, through which the passage of the blood was plainly discernible under a microscope: since that date, 1832, no one has presumed to doubt a fact so clearly demonstrated.—*Edward Newman.*]

45. *Number of Changes of Skin in the Smerinthi.*—I see (Entom. 67) you propound a query relative to the larva of *Smerinthus Populi* and the *Smerinthi* generally. I have many times reared both *S. Populi* and *S. ocellatus* from the egg: they have always, in my experience, undergone three changes of skin. *S. ocellatus* attains its full size in about forty-five days on the average; *S. Populi* I have found of rather slower growth, usually about five days longer. It is a question of some interest, I think, whether the number of the ecdyses is in all cases the same in each species: I am rather inclined to the supposition that it varies in different individuals in some species, though I have no exact data to found this upon as yet. The *Smerinthi* frequently consume the cast-off skin, except the head.—*J. R. S. Clifford; 21, Robert Terrace, Chelsea, September 23, 1864.*

45. *Changes of Skin in the Genus Smerinthus.*—Having

during the present year reared a number of *Smerinthus* *Populi* and *S. ocellatus* larvæ from the egg, I can bear testimony that this genus change their skin, though in a somewhat different manner to others. I have noticed, in all, three changes; the first takes place when the larvæ are about half an inch long, the second when one inch, and the third when from one inch and a quarter to one inch and a half. When about to change their skin the larvæ cease feeding for two or three days; the body becomes attenuated, the head swells and appears to start away from the body. If the larva is now observed through a lens, the head will be seen gradually swelling out of the old cap, and the skin breaking up between each segment and along the spiracles. The cap is thrown off first, by itself, and may be found among the rubbish in the breeding-cage. The rest of the skin is extremely thin, and may sometimes be found rolled up like a piece of thread. These changes, taking place mostly in the night, are seldom observed, though the larva may sometimes be seen during the day making painful efforts to free itself from the old cap. Three-fourths of my young larvæ perished in their first moult, not being able to free themselves from the old head-covering. I do not restrict the number of changes to three, but that is all I have observed. Others may have noticed a greater number.—*Henry Moncreaff; Southsea, September 6, 1864.*

46. *Taking Moths on the Trunks of Trees.*—Can you inform me of the best method of capturing moths when on the trunks of trees? I find that the rotundity of the trunk in most cases precludes the possibility of getting the insect into a net; “pill-boxing” injures the wings, and the only other way with which I am acquainted is that of covering the insect with a box, in which are some bruised laurel-leaves, until stupefied; this takes too much time, for while you are holding the box a rarity may settle on the opposite tree, and only an Entomologist can know how tantalizing this is. I should therefore feel greatly obliged by your telling me of a more practical and expeditious method than either of those which I have described.—*William Gibson; Parkhurst, Isle of Wight, September 17, 1864.*

[I know of no way to be compared with “pill-boxing,” either for expedition or security, and I have never before heard of any injury to the wings by the operation. But I

should like to hear the Rev. J. Greene, Mr. Doubleday or Mr. Birchall on the subject. I presume Mr. Gibson has Mr. Greene's 'Insect Hunter's Companion ;' it enters fully into matters of this kind.—*Edward Newman.*]

47. *Geophilus electricus*.—Can you give me any information of the following creeping insect? It was an inch and a half long, and about as thick as small string. It was of a light stone-colour, and had legs all along its body, and two antennæ. It gave a rather brighter light than the glow-worm, and when taken up my fingers glowed with phosphoric light.—*Albert Dumsday; Talbot Hotel, Cuckfield, October 5, 1864.*

[It is a myriapod, and not properly an insect. The name is *Geophilus electricus*, so called from the appearance of electric light which it emits when trodden on.—*Edward Newman.*]

48. *Pericallia Syringaria* emerging in October.—Out of about twenty-five larvæ of *Pericallia Syringaria*, which were all hatched in the space of twenty-four hours, one single larva fed up rapidly, and became a pupa. It emerged a few days since. Is it not strange? The remainder of the larvæ are still small, and are beginning to hibernate.—*William Stewart; Eldon Villa, Redland, Bristol, October 5, 1864.*

49. *Larva of Acronycta Aceris*.—Mr. J. Sarson, of this town, brought me a caterpillar, which he had taken feeding upon oak, for identification. As I have never seen one like it before, nor remember to have seen the figure of it in any publication I have had access to, I have made three drawings of it for your examination. Will you kindly say, in the next 'Entomologist,' what species it is?—*Edwin Tearle; The Crescent, Leicester, October 9, 1864.*

[The larva is that of *Acronycta Aceris*, described at page 43 of the 'Entomologist.' I have rarely obtained it from oak, but it is by no means uncommon on *Acer Pseudo-platanus* (sycamore) in August and September.—*E. Newman.*]

50. *Entomological Society*, September 5, 1864.—Mr. Dunning exhibited a number of full-fed larvæ of a *Noctua* (*Agrotis Segetum*, or *A. exclamatoris*?), which had been sent to him by Mr. J. D. Kay, from Brantingham, in the East Riding of Yorkshire. Mr. Kay had had a field of turnips, worth £150, entirely destroyed by these caterpillars. Numerous similar

instances from various parts of the country had been received, and it was mentioned that their ravages were not confined to the turnips. Mr. Janson exhibited four species of Coleoptera hitherto unrecorded as British, and communicated the following in reference thereto :—" 1. *Euryusa sinuata* of Erichson, taken by the Rev. A. Matthews, many years since, in Oxfordshire. 2. *Leptusa analis* of Gyllenhal, taken during the past month in the Black Forest, Perthshire, by Mr. D. Sharp ; differs conspicuously from *L. fumida* in its superior size, reddish brown hue, semi-opaque surface, and more strongly and coarsely punctate abdomen. 3. *Aleochara spadicea* of Erichson, taken by Mr. J. A. Brewer, in Cumberland, in the autumn of 1863. 4. *Homalota notha* of Erichson, taken by Mr. Brewer beneath rejectamenta of the River Medway." The Rev. Hamlet Clark exhibited a specimen of *Buprestis ocellata*, a native of Central India, which had been found on board ship between Mauritius and Madagascar, and upwards of fifty miles from land. Mr. S. Stevens exhibited a complete set of the species of butterflies and beetles captured by Mr. Lowne in Southern Syria and Palestine, during the present year. Mr. J. R. Larkin, of Elm Cottage, Old Brompton Road, exhibited a novel form of case for the reception of insects ; the top and all the sides were of glass ; the bottom corked in the usual manner, and framed, so that the whole might be hung picture-wise against a wall. Mr. Tegetmeier read and presented to the Society an extract (probably) from a provincial (Ipswich?) newspaper of 1833, which contained an account of the first scientific meeting of the Entomological Society of London. (This extract is now affixed to the first volume of the 'Transactions' in the Library.) Mr. Tegetmeier also brought under the notice of the Society the letters recently published in the 'Times' on the subject of bees and bee-keeping, and quoted numerous errors into which the writer had fallen, such, *e.g.*, as the statement that the queen selects her husband and passes her honeymoon amid the flowers, that a swarm of bees is as large as a bunch of grapes, that bees are affectionate and fond of children, &c. It was to be regretted that a fictitious value had been given to so worthless a compilation by insertion in the columns of an influential journal ; many of the statements of the writer had been answered and exposed by Mr.

Woodbury in the same journal, but as a further communication from that gentlemen had been refused insertion in that newspaper, Mr. Tegetmeier thought it right to give the Members of the Society an opportunity of placing on record their opinions on the matters in question, lest Entomologists abroad should imagine that the letters of the "Times' Bee-master" represented the amount of practical and scientific knowledge current in this country on the subject under discussion. Lieut. R. C. Beavan, Bengal Revenue Survey, communicated "Remarks on the Tusseh Silkworm of Bengal." Prof. Westwood read a paper intituled "Descriptions of new Species of Sagrides and Megalopides from the Old World and Australia," and the Rev. Hamlet Clark a paper intituled "Description of Species composing the Genus Schema-tiza."

52. *Duplicates*.—*Zygæna Minos*, *Nyssia zonaria*, *Clostera anachoreta*, *Bankia argentula*, *Agrotis lucerneae*, *A. valligera*, *A. Tritici*, *Aspilates strigillaria*, *Apamea connexa*, *Pyrophila pyramidea* (mset), *Miselia Oxyacanthæ*, &c., &c., may be had on application at 9, Devonshire Street, between the hours of 1 and 4 P.M. I repeat that I cannot post the duplicates thus offered.—*Edward Newman*.

At Home.—I shall have pleasure in receiving the visits of Entomologists, as usual, from 6 to 9 o'clock on Friday, October 21st, at No. 7, York Grove, Queen's Road, Peckham.—*Edward Newman*.

The Cabinets of British Lepidoptera of the late W. J. Russell, Esq., of Ringwood, and the late Mr. H. Reid, of Doncaster.—I am requested to announce that Mr. J. C. Stevens will sell by auction, at his Great Rooms, 38, King Street, Covent Garden, about the third week in October, the Collections of British Insects formed by the above-named gentlemen. Catalogues are preparing, and will be ready a week before the sale.

 No. 8 of the 'Entomologist' will be published on the 1st of November.

THE ENTOMOLOGIST.

No. 8.]

NOVEMBER, MDCCCLXIV.

[PRICE 6D.

Analytical Notice of the 'Transactions of the Entomological Society of New South Wales.' Vol. i. Parts I. and II. 8vo. 206 pp. letter-press, and ten Plates. Price 6s. each Part.

NOTHING can mark in a more unmistakable manner the rapid progress of an infant colony than its indulgence in the amenities of Science. There is no era in a nation's history so rude as to reject exciting amusements, such as the race-course or the stage: these follow the acquisition of wealth as invariably as wealth itself attends on persevering industry. With Science the matter is entirely different: there is little excitement, still less show, and a minimum of repute in studying those forms of life which offer a field for scientific research, and occupy the hours and the thoughts of the humble-minded, the studious, and the retiring man.

A colony must have passed through the ordeals attendant on the first struggle for existence,—must have subsequently drank deep of the more exciting pleasures and occupations of life,—before it can settle down into the quietude of observing and recording those minute differences of economy and form which constitute materials for a superstructure of Science.

New South Wales has passed through this ordeal,—has drank the cup of so-called pleasure almost to the dregs,—and has now found breathing-time and leisure for more ennobling pursuits.

It is with heartfelt satisfaction that I receive, as an evidence of this progress, two numbers of a journal of which I can truly say they would do credit to any country and to any age. I will not insult the Society from which they emanate, by saying that these 'Transactions' are very well *for a beginning*; that they do credit to *colonial* industry, skill, or knowledge; that they are very creditable *under the circumstances*: grudging praise of this kind would be as

untruthful as it certainly would be unkind. The accuracy and beauty of the printing, the elegance and perspicuity of the Latin characters, and the profound knowledge of the labours of antecedent writers, displayed in every page, quite relieve contributors and editors from the necessity for any apology on the score of inexperience, and at once place the 'Transactions of the Entomological Society of New South Wales' in the very highest rank of the periodical literature of Entomology. An additional charm invests this journal; I allude to the constant recurrence of the name of MacLeay, a name not merely associated with a once popular scheme for the arrangement of living beings, but also with the very best descriptions of Australian Coleoptera that have hitherto appeared in print.

The original papers are eleven in number: their titles are given below:—

"On the Gall-making Coccidæ of New South Wales, by H. L. Schrader."

"Descriptions of Twenty New Species of Coleoptera belonging to the Families Cicindelidæ and Cetoniidæ, by William MacLeay, Jun."

"Description of Twenty New Species of Stigmadera, by William MacLeay, Jun."

"Description of an Ovoviviparous Moth of the Genus *Tinea*, by the Hon. A. W. Scott."

"On the Pselaphidæ of Australia, by the Rev. R. L. King." (In two parts).

"On the Scaritidæ of New Holland, by William MacLeay, Jun." (In two parts).

"On the Insects of Australia allied to the Glaphyridæ, by William MacLeay, Jun."

"On the Scydmaenidæ of New South Wales, by the Rev. R. L. King."

"Notes on the Metamorphosis of a Dipterous Insect, by Gerard Krefft."

"Description of New Coleoptera from Port Denison, by William MacLeay, Jun."

"On a New Species of Ornithoptera, by the Hon. A. W. Scott."

Three of these papers, treating of life-history, have to me a peculiar interest; indeed an interest which I cannot now

feel for mere technical descriptions of new species. In my early days I had an overweening weakness for compiling such descriptions, and I contributed largely to the number of names cast loose upon the world of Science, without method, and, I fear, without benefit to others. The former volume of the 'Entomologist' was the great repository of my descriptions, and Australia was the continent whence my materials were derived. All this is changed, and I have now much more pleasure in observing the living than in classifying the dead: hence the preference I feel for those three of the papers I have enumerated, which relate almost exclusively to economy; and first Mr. Schrader's paper on the gall-making Coccidae.

This may almost be considered virgin soil for the Entomologist: in Europe, and especially in Britain, we know almost nothing of galls manufactured, or rather caused, by Coccidae; whether they exist is a question of some considerable difficulty, but it is quite certain we have not studied them. Indeed Mr. Schrader himself does not appear to have expected the result he obtained from an examination of the Australian galls. "When I came to the colony," he writes, "I was astonished to find so great a number and variety of galls. At first I thought they were produced by Cynipidae, but I soon ascertained there were comparatively few hymenopterous gall-makers here. Most of the Hymenoptera which I found in galls were parasites upon gall-making Diptera and Homoptera. The Coccus-galls very frequently exhibit monstrosities in their growth, caused sometimes by the early death of the female inhabitant, in which case the orifice of the gall closes up, but sometimes they are owing to the parasitic attacks of numerous minute Hymenoptera." The Coccidae are, however, exposed to the attacks of Chalcidites, and, moreover, a species of weevil inhabits one of them; and spiders and ants occasionally take up their residence in galls that have been deserted. The enormous size of these Coccus-galls strikes the European Entomologist with astonishment. "I found one," writes Mr. Schrader, "of the species *Brachyscelis munica* where the length of the whole gall was eleven inches, and the thickest part eight lines wide. A gall of my species, *Brachyscelis duplex*, was six inches and a half long, and its greatest width eighteen

lines." The living female extracted from this last was eighteen lines in length, far larger than any *Coccus* of which we had previously any knowledge. Where these insects appear in great numbers they are excessively injurious to vegetation. "I have seen whole patches of ground," writes Mr. Schrader, "often a hundred feet square, where the young trees were totally destroyed by the attacks of *Brachyscelis phalerata* and *B. ovicola*. In such a case the leaves remain small, the branches become crippled, and finally die."

Mr. Scott's paper on the ovoviparous moth will not bear abbreviation. I therefore extract it almost entire.

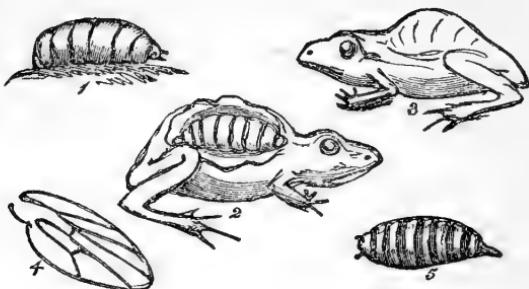
"The lepidopterous insect brought under your consideration is closely allied to the genus '*Tinea*' of modern authors, is of small size, and boasts of no outward singularity of form, nor extraordinary beauty of colouring, to distinguish it from others of that group. It was after dark in the early part of October, 1861, that we first captured a specimen with the hand, being attracted at the moment by its elegant colouring, and wishing to secure it for the cabinet. Fearful that the plumage might be injured by the struggles of the moth while endeavouring to escape, it was gently compressed, and on opening the hand we observed numbers of minute, but perfect, larvae being ejected from the abdomen in rapid succession, and moving about with considerable celerity, evidently in search of suitable shelter and food. This incident, so singular and new to us, required further confirmation, and consequently many more of a similar kind (of course all females) were caught and attached to corks, previously covered with black paper, and subjected to the closest scrutiny. These moths shortly commenced to deposit their living progeny with great rapidity, the small, white, fleshy larvae being seen with great distinctness on the black surface of the paper; thus affording clear and satisfactory proof that this insect, the only one of its order at present known, is unquestionably ovo-viviparous, and will represent in future this peculiarity among the Lepidoptera; similarly to those few species existing in the hemipterous and dipterous orders. This fact having been ascertained, our attention was incited to the care of the little strangers, and to procure suitable shelter and food for them, in the hope that we should be able to rear them, and thus to supply a correct account of all

their metamorphoses. In this we were guided by the form of the imperfect insect, and accordingly placed before them grains of maize, pieces of flannel and woollen cloth, shreds of partially decayed paper, some fungus and lichen, and other materials known to be the food of caterpillars belonging to the genus 'Tinea' and neighbouring genera. Unfortunately they turned with distaste from all these supplies, with the exception of the cloth and flannel, and even to these they attached themselves with reluctance. We, however, persevered, and put them in a dark and roomy box, aware of the marked dislike to light of larvæ possessing predatory habits, and left them undisturbed for a week, at the end of which we were pleased to find that small silken tunnels or tubes had been constructed on the surface of the brown cloth, and that the denuded appearance of several places exhibited signs of their ravages. From this cloth they shortly after transferred themselves to the flannel, where they fabricated small portable cases, composed of two separate pieces, of an irregular oval form, joined at the sides, but leaving apertures at each end; and being thus comfortably housed, we entertained sanguine hopes of rearing them. These hopes, however, were not to be realised, for towards the end of November (nearly two months from their birth) they ceased to thrive, and eventually all perished."—P. 34.

No less interesting is Mr. Krefft's paper on the metamorphosis of a dipteron,—a paper, however, to which I should have thought a more descriptive title might have been found: it records the interesting fact of the existence of an œstridæous parasite on frogs, at least the figures of larva and pupa lead me to the conclusion that the fly must be related to our *Estridæ*: here is the paper itself:—

"In the course of my inquiries into the Batrachian Fauna of Austrâlia, I have frequently captured frogs infested with a number of parasites, seeming to be larvæ of dipterous insects; they are generally found between the skin and flesh, just behind the tympanum, but in cases where from three to four exist upon a single individual they reach as far back as the anus; these larvæ may be taken for glands at first sight, but closer examination soon reveals a small opening, and a gentle pressure will quickly exhume the yellow parasite. In all cases where the larva was forcibly ejected, the death of

the frog, whether large or small, was caused thereby ; and in fact these creatures generally die after the larvæ have worked their way out.



1. Pupa of Batrachomyia attached to a stone.
2. Uperoleia marmorata, an Australian frog, with the skin of its side partially laid back to show the larva of Batrachomyia *in situ*.
3. The same, the skin remaining entire.
4. Wing-rays of Batrachomyia.
5. Another œstrideous larva, parasitical on *Hyla citropus*, another Australian frog.

“ The perfect insect, a small yellow fly, called by Mr. W. S. MacLeay, Batrachomyia, was first reared by Mr. George French Angas ; the typical specimen is now in the Australian Museum, and was obtained from a species of *Cystignathus* (*C. Sydneyensis*), the most diminutive of our frogs ; the specimen I reared lived on another small Batrachian (*Uperoleia marmorata*), and is to all appearance a different species. Having obtained a frog in the beginning of April, when the larva had almost reached its full size, and deposited it in a glass vessel with some moist earth and moss, I found that the parasite left its shelter a few days afterwards, the frog dying as usual in consequence. I observed the yellow larva for more than twenty-four hours traversing the moss, and found it, after thirty-six hours, completely ensconced in a black covering, but without being attached to any object ; whilst in a state of nature the chrysalis is generally fastened to the under side of some piece of rock in damp localities. Thirty-two days afterwards the perfect insect emerged.

“ I have subsequently attempted to breed other specimens,

but without success ; all my larvæ went into the chrysalis state, but they always died afterwards.

" It appears that some frogs are more infested with this parasite than others ; it is most common upon *Cystignathus Sydneyensis* in this neighbourhood, a remarkable fact, as this species is the smallest of the tribe, and frequents the water much.

" At Shoalhaven I found *Pseudophrine Bibronii* much infested, some specimens, not more than half an inch long in the body, having two to four larvæ to support ; and whenever I found *Hyla citrops* I have always observed the larvæ of a fly upon them. I believe that the insect living upon *Hyla citrops* will prove to be different from the present species, as its larva varies in structure considerably from all others."

—P. 100.

I have been so charmed, I may say so fascinated, with this undertaking, that I have extended my notice and extracts somewhat beyond reasonable bounds ; but I trust in this I shall be excused, because all my readers are Entomologists, and all Entomologists will rejoice with me in the publication of a journal of such sterling merit.

EDWARD NEWMAN.

Coleopterous Fauna of the Atlantic.—Having just returned from a second entomological visit to the Canary Islands, in which I was accompanied by my brother, I observe some remarks in the 'Entomologist' for September (Entom. 57), embodied in a notice of the Museum 'Catalogue of the Canarian Coleoptera,' lately written by my friend Mr. Wollaston ; in which the relative number of species existing in the Islands of the Canarian group and Madeira are set down (doubtless in accordance with the earlier Catalogues, but) erroneously ; and it will be observed from the subjoined table that want of investigation, rather than inherent poverty, has caused the disproportion between the Islands themselves, whilst their correspondence with Madeira is rendered still more striking. I hope, in the course of the winter, to publish a history of these Islands, descriptive and deductive ; as I cannot but think that sufficient evidence is now accumulated to substantiate the magnificent theory of Atlantis,

enunciated by Prof. Edward Forbes, whose loss we shall always have cause to regret; further comment would therefore be premature; but I cannot refrain from adding that Mr. Wollaston's 'Catalogue,' besides its undoubted scientific value, does as much credit to his field labours as to his scrupulous accuracy. It was, to us, a constant source of amazement, not that he should have failed to find species which we subsequently obtained, but that he should have accomplished so much, and that without the aid of graduated wire sieves, which, in our case, economised so much time and labour. The relative distribution of Coleoptera among the Islands may be stated as follows, *viz.*, Lanzarote 277, Fuerteventura 261, Grand Canary 335, Teneriffe 554, Gomera 408, Palma 254, and Hierro 210; but it must be observed that the numbers assigned, especially for Grand Canary, Palma and Hierro are probably far too low. The annexed table gives, in the first column, the number of Madeiran species in each section; in the second, the arithmetical proportion which might be expected in the Canaries; and in the third, the actual numbers found. And I believe that if the sections were better chosen, especially with regard to philhydrous representatives of terrestrial species, the parallelism would be even more complete:—

	MADEIRAN.	CANARIAN.	
		Proportionate.	Ascertained.
I. Geodephaga	78	118	123
II. Hydradephaga	9	14	22
III. Philhydrida	17	26	25
IV. Necrophaga	120	182	131
V. Cordylocerata	26	39	53
VI. Priocerata	44	66	95
VII. Rhyncophora	129	195	191
VIII. Eucerata	11	17	15
IX. Phytophaga	27	41	44
X. Pseudotrimera	26	39	19
XI. Heteromera	55	83	129
XII. Brachelytra	117	177	150
	—	—	—
	659	997	997

It was to have been expected that the Heteromera would be

more numerous in the Canaries, owing to the African character of the Islands of Lanzarote and Fuerteventura; whilst, on the other hand, the deficiency in *Necrophaga*, *Pseudotrimera* and *Brachelytra* may be generally attributable to the fact that these sections find a maximum in more northern latitudes. Amidst about a hundred novelties, the discovery of *Buprestis Bertholeti* in the Pirial of Hierro, after nearly thirty years' obscurity, may merit a passing notice, especially as its very existence has of late years been called in question. In conclusion, I should feel extremely obliged for any notes, especially geological and botanical, with reference to these Islands, or the cognate groups of the Cape de Verdes, Azores, &c., and especially the north-west coast of Barbary.

—W. D. Crotch; *Uphill House, October 8, 1864.*

Description of the Larva of Nemeobius Lucina (Duke of Burgundy).—The eggs are laid about the 1st of June (I give this as a medium date, having no doubt that the period of oviposition may extend over twenty days), on the under side of the leaves of *Primula veris* (cowslip), either singly or in clusters of four or five; their shape is spheroid, depressed at the south pole or base, and produced at the north pole or apex; their colour is pale glaucous. The larva emerges about the fourteenth day, and remains on the under side of the cowslip-leaf, in which it makes small round holes, thereby indicating its presence; it continues to feed for several weeks, the duration of the larval state being dependant on temperature. When full-fed, it rests with its under surface closely appressed to the leaf; but if touched or annoyed it falls from its food-plant, lying motionless on its side, and bending its body in a crescentic form, the two extremities approaching, but not meeting. Head narrower and every way smaller than the 2nd segment, into which it is received and sometimes completely withdrawn; body somewhat onisciform, the dorsal surface convex, the ventral surface flat; the legs and claspers concealed; the divisions of the segments deeply incised and well defined; each segment emits about forty hairs or bristles, of which those on the back are slightly arcuate, those on the sides straight. Colour of the head pale wainscot-brown, glabrous and hairy, the hairs and ocelli

black : colour of the body dingy white, with an indistinct medio-dorsal stripe of a smoky olive tint, apparently in great measure due to the presence of food in the alimentary canal, an inference that receives support from the fact of the stripe being partially interrupted at the segments ; on each side is a waved olive stripe, also interrupted at the segments, and thus divided into a number of short oblique lines, each of which terminates in a yellowish dot ; on each segment, between the medio-dorsal and lateral stripes, is an orange-coloured, wart-like and hairy spot ; there is a second indistinct lateral stripe near the spiracles, which is olive at its anterior extremity, but fades into yellow towards the anal end. The spiracles are black ; ventral surface pale olive. Pupa obese, the head rounded ; attached by the tail, and also by a surcingle round the waist, to the leaf or petiole of the food-plant ; emitting numerous longish hairs in the same manner as the larva. Colour the most delicate pale wainscot-brown, with a number of black spots ; the principal of these are—a narrow band passing over the neck immediately behind the base of the antenna-case ; a shorter band behind this, but in front of the thorax ; a short stripe on the costa of each wing-case, and numerous subquadrate spots spread over the entire dorsal surface ; these are disposed in two dorsal series of eleven each, and two lateral series on each side ; these are irregular and minute on the thorax, but regular and conspicuous on the abdomen, where is also a third intervening series of minute dots ; all the hairs are sienna-brown. It remains in the pupa state throughout the winter, and the butterfly appears in June, flying with great rapidity along pathways in woods, and also along the outskirts of woods. I am indebted to Mr. Wright, who received the larvæ from Mrs. Hutchinson, for the opportunity of describing this little-known larva, which I believe was first discovered in England by the Rev. H. Harpur Crewe, who has described it in the 'Zoologist' (Zool. 8402) : Hübner's figure, as copied by Curtis, is very accurate.—*Edward Newman.*

Entomological Periodicals.

The 'Entomologist's Monthly Magazine.'—No. 5 contains the following papers :—“ Notes on the Diurnal Lepidoptera

of North-Western India, by Capt. A. M. Lang (with descriptions of new species by F. Moore)." "Reminiscences of an Entomological Excursion up the Demerara River, by B. Piffard." "A new *Nonagria* (*N. brevilinea*), by C. Fenn." "Descriptions of the British Species of *Stenus*, by E. C. Rye." "New Species of Butterflies from Guatemala and Panamá, by H. W. Bates." "Thecla *Betulæ* near Cork, by G. F. Matthews." "Occurrence of an *Aphthona* new to Britain (*A. nigriceps* of Redtenbacher)." "Occurrence of a *Liodes* new to Britain (*L. castanea* of Herbst), by E. C. Rye." "Discovery of Larva and Pupa of *Rhipiphorus paradoxus*, by S. Stone" (published in No. 6 of the 'Entomologist,' Entom. 84). "A Lepidopterous Imago and Ichneumons bred out of one Larva, by A. G. Butler." "Captures of Lepidoptera, by J. B. Blackburn." "Notes on *Orgyia gonostigma*, by G. Gibson." "New Locality for *Gastropacha ilicifolia*, by the Rev. E. Horton. "Captures in the South, by Trovey Blackmore." "Spilosoma *papyratia* near Cambridge, by Rev. C. Grinsted." "Eupœcilia *sodaliana*, *Tapinostola Bondii*, and *Clostera anachoreta*, by E. Meek." "Bombus *lapponicus* at Keighley, by R. Tyrer." "Migration of Aphides, by Dr. Knaggs." And "Proceedings of the Entomological Society of London."

I am delighted to see another contributor to Exotic Entomology in Captain Lang, and to learn that we are to have descriptions of Indian Lepidoptera by Mr. Frederic Moore; there is no Entomologist so capable of this task as Mr. Moore, and every subscriber to the 'Monthly Magazine' will rejoice that it is hereafter to be enriched by his labours. I cannot, however, congratulate the Editors in having given Mr. Moore's only description in this paper as a foot-note and in smaller type: these descriptions, being the most important part of the communication, should certainly have the post of honour. Mr. Bates's invaluable descriptions only extend this month to four pages. Mr. Fenn's new *Nonagria* is the one I mentioned three numbers back (Entom. 86) as *Nonagria neurica*: from Mr. Fenn's description I fancy he has compared his insect with *Nonagria Arundineti*, misnamed *N. neurica* in our cabinets, and not with authentic continental specimens of the true *N. neurica*. Mr. Doubleday, who has seen the specimen, will do us a service by clearing up this little doubt. The only other papers that require particular notice are those

by Mr. Butler, Mr. Horton and Mr. Meek. Mr. Butler records the emergence of a perfect specimen of *Acronycta Psi* after two small ichneumons, apparently the same as those infesting *Pieris Brassicæ*, had escaped. Mr. Horton's new locality for *Gastropacha ilicifolia* is near Lynton, North Devon. Mr. Meek found two larvæ of *Closter a anachoreta* feeding on the Ontario poplar at Folkestone.

Entomological Notes, Queries, Captures and Duplicates.

53. *Ivy-blossoms at Torquay: Laurel-box versus Pill-box.*—Since my arrival at this place, equally remarkable for its natural beauty and the profusion and quality of its Lepidoptera, I have had the pleasure of renewing my acquaintance with "ivy-hunting." With the exception of two or three "nights" with my friend Mr. Birchall in Ireland, thirteen years have elapsed since, lantern in hand, I examined the ivy-bloom. I therefore experienced all the delight of a novice, and had, moreover, the pleasure of taking several species which I had never seen alive. I have only been "out" three nights. My young friend Mr. B. M. Stewart, of Worcester College, Oxford, was my companion, and he very kindly showed me the best localities. There is not much ivy, and what there is, is extremely difficult to get at, as it grows on the face of steep rocks sloping towards the sea. But the excellence of the insects found here is ample compensation for the fatigue, and, I may add, peril. Though labouring under the double disadvantage of cold east winds and a too bright moon, we took the following species, mostly in first-rate condition, *viz.*, *Anchocelis rufina*, *A. pistacina* and *A. lunosa*, *Orthosia lota* and *O. macilenta*, *Noctua glareosa*, *Epunda lichenea* and *E. nigra*, *Agrotis saucia*, *Polia flavigincta*, *Xylinea rhizolitha* and *X. petrificata*, *Cidaria psittacata*, &c. Mr. Stewart showed me in his collection two specimens of *Heliothis armigera*, and one magnificent *H. unionalis*, all captured by himself at ivy. The above remarks are intended as introductory to a reply to the question asked by Mr. Gibson (Entom. 101), as to the best method of capturing moths on trees. As to the relative merits of "pill-boxing" and the tin box with laurel-leaves, I fear that the advocate

of the one will never succeed in making a convert of the advocate of the other. I can only say for myself that, having, in the ivy-hunting alluded to above, had an opportunity of seeing the pill-boxing method practically carried out, I am more than ever persuaded of the superiority, on the whole, of the tin box. Mr. Newman, in his note appended* to Mr. Gibson's question, says, "I know of no way to be compared with 'pill-boxing,' either for expedition or security." Mr. Newman will, I am sure, excuse me if, while *doubtfully* conceding the *expedition*, I deny the *security*. (Only last night I saw Mr. Stewart unwittingly perform the horrid operation of decapitating an *Orthosia* *lota* (he wanted the insect, but with a head), the instrument wherewith the deed was done being a pill-box. This evil deed was followed by another, wherein a fine *Xylina petrificata* was unhappily maltreated, the result, however, being only the loss of half an antenna, and a serious abrasion of the thorax. That *some* moths will flutter about and spoil themselves in a pill-box is, I believe, admitted on all hands. I may just observe, in passing, that this cannot occur in the tin box. Upon my asking Mr. Stewart whether he would trust, say *Heliothis armigera*, to the pill-box, his answer was, "Oh, I should chloroform *that* at once." Having *seen* now this operation of chloroforming, I am more than ever prejudiced against it. The only thing I can allow is that its operation is speedy. But there remains the insuperable objection that insects thus killed are rendered more or less *rigid* and *brittle*. I have found it almost impossible to set insects, killed in this way, the next morning. I am well aware that many will be at once ready with the rejoinder, "But *we can*." Possibly. Yet I find very few insects (thus killed) which come up to *my* idea of good setting. I allude especially to the antennæ and legs. In whatever position the antennæ and legs of a moth may be when chloroformed, in that position they will remain, according to my experience. Neither persuasion nor force will alter them. Again, I am somewhat disposed to question even the superior expedition of this method. I find the custom here to be, whatever it may be elsewhere, after half-a-dozen boxes or so are filled, to then stupify the insects by dropping a minute quantity of chloroform into each box. The insects are then pinned, and fixed in the collecting-box. What advantage, then, this

method possesses over the laurel-leaves box I am at a loss to conceive. Certainly no time is gained this way. Let me, then, strongly recommend your correspondent to at least *try* the tin box. I don't quite understand his difficulty, which is thus expressed, "This (the laurel-box) takes too much time, for while you are holding the box a rarity may settle on the opposite tree," &c. Does Mr. Gibson mean that he holds the box *over* the moth on the tree, and that he keeps it there until the moth is stupified? If he *does*, then he may well complain of the plan, which, however, is his, not mine. If he does *not* mean this, then I must remind him that he cannot be in two places at once, "barring (as a countryman of mine once observed) he was a bird." If he is trying to secure a moth on tree A, he must do so before he goes to tree B, even if there were half-a-dozen rarities on it. Assuming that Mr. G. understands the use of the tin box, I would say, let him take three of them well supplied with *fresh* bruised laurel-leaves. I think they will be sufficient for all practical purposes. They will not take up more room than a lot of pill-boxes. Each box may *safely* contain three or even four moths. Suppose there is a good moth on tree A, and another on tree B. Box A moth, and put the box in your *trousers'* pocket; then proceed to B. I challenge the most expert pill-boxer to do this as quickly by his method as by mine. It is *better* not to have more than three moths at one time in each box, nor will it be required, except on those rare occasions when insects are so plentiful as to cause an *embarras de richesses*. When boxes 1 and 2 have each three moths, and box 3 *one*, then proceed to empty the contents of the first two; pin, and put them in the collecting-box. The moths require no chloroforming; they are already stupified. Perhaps, in reply to these few remarks, somebody will take up the cudgels in behalf of "pill-boxing." If he should do so, will he kindly inform me whether the usual practice is to chloroform the insects after so many boxes are filled (as above), or to bring all the boxes home, and then perform that operation.—*Rev. J. Greene; 4, Cary Parade, Torquay, October 14, 1864.*

54. *Sex of Larvæ.*—I have felt greatly disappointed at not receiving any answer to my question (Entom. 86) respecting the sex of larvæ. Surely this is a question on which some "big man" might bestow a thought; or perhaps the

question has already been raised and settled? I have slaughtered a large number of larvæ, chiefly those of *Pygæra bucephala*, and examined them, both with the naked eye and the microscope, but with no result. I hope, however, next year to pursue my inquiries on other species. The microscope, as I have just said, does not, as far as my experience goes, reveal any difference between individuals of the species I have mentioned; but I am but a young observer, not having to so great an extent the patience and experience of an older "hand," who would know better how to set about his work. I should feel greatly obliged to anyone who would inform me what is known on the subject.—*William Gibson; Parkhurst, Isle of Wight, October 21, 1864.*

[To me it seems highly probable that the silence of Entomologists is to be attributed to a reluctance to offer an opinion on so abstruse a subject: it has been asserted, but I admit without satisfactory proof, that the larvæ of bees are asexual: the subject is one on which I solicit the views of my readers, rather than express my own.—*E. Newman.*]

55. *Dasyycampa rubiginea* in *Oatlands Park*.—Sugaring last week in Oatlands Park, I was not a little surprised to find a very fine specimen of this local and scarce moth on one of the trees. It was a cold night, and the only other moth I noticed was a specimen of *Miselia Oxyacanthæ*. Some few years since, I spent many an evening in Norbury Park and on Mickleham Downs, in the month of October, searching for this rarity, but until now never saw it alive. Oatlands Park is about six miles from this celebrated locality for the insect, and within seventeen miles of London. I don't know if any of your readers have noticed the great abundance of earwigs this autumn that are attracted to the sugar; on some trees on warm nights I have counted upwards of fifty, and they scare away all the moths.—*Samuel Stevens; 24, Bloomsbury Street, W.C., October 10, 1864.*

56. *Wasps in Yorkshire*.—Wasps have been very numerous in North Yorkshire this year (1864). They have literally swarmed, and have committed great havoc in the gardens, among wall-fruits and the sweeter sorts of apples. I have been struck by the smallness of one species, which is very much darker in colour than the common wasp. When on the north moors last July, I took two nests, and remarked

that the nests were deep in the bank, very little comb, and the colonies not large. Near to one of these nests we found one suspended in the hedgerow. It would be the size of a quart basin, oblong in form, with the entrance at the bottom. This species of wasp, unlike its less and darker relations, always shows good sport on being molested. These nests are rare; some years you may find several, and then for three or four years none. In 1860 there were two in my garden—one in a gooseberry-bush, and another suspended under a projection in the garden-wall. One of my neighbours had two in his hedge-row, and another had one in a rose-bush. Since that time I have neither seen nor heard of one until last July. In July, when pulling red currants, I found a wasp's nest suspended to the bough of a red currant bush; it was less than a hen's egg, pear-shaped and with an entrance at the bottom. It was forsaken, and never contained any comb. In 1852 I found a similar nest suspended to the under side of a wooden spout over a kitchen-door. It contained one row of comb, containing eight cells, but they were, when found (November), empty.—*J. Ranson; York.*

57. *Duplicates.*—*Zygæna Minos, Liparis dispar, Callimorpha dominula, Hepialus hectus, Apamea connexa, Xylophasia scolopacina, Erestria fuscula, Clostera anachoreta, Nyssia zonaria, Notodonta camelina, Smerinthus Populi, Aspilates strigillaria, and Saturnia Carpini.*—*E. Newman.*

At Home.—Fridays, November 4, 11 and 18, from 6 to 9 o'clock.—*E. Newman; 7, York Grove, Queen's Road, Peckham.*

Cabinets of British Lepidoptera.—The sales announced in the 'Entomologist,' No. 7, are postponed until November 8.

Edwin Birchall will be much obliged by correspondents forwarding at once any post boxes of his which are now in their possession. Upward of fifty boxes sent out last year have not yet been returned.—*Oakfield Villa, Birkenhead, September 5, 1864.*

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THE ENTOMOLOGIST.

No. 9.]

DECEMBER, MDCCCLXIV.

[PRICE 6D.

Description of the Larva of Polyommatus Phœas (Small Copper).—Without that attentive and unremitting observation which I believe has not hitherto been bestowed on the subject, I am unable to say, with anything approaching to certainty, whether we have one, two or three broods of this brilliant little butterfly; its greater abundance at the beginning of June, the beginning of August, and beginning of October, favour the idea that there are three broods; and it is quite certain that many of those larvæ which we find during the entire month of August, and which become pupæ in September, appear as butterflies at the end of that month or beginning of October: are we to suppose that some of the pupæ remain in that state throughout the winter, and do not effect their final change until the following summer, so that the October and June flights are really portions of the same brood? I am not aware of any instance of the eggs of a butterfly remaining in that state more than twenty days, and I find that ten or twelve days is the more usual period; so that there is no reason to suppose that in this particular instance the eggs survive the winter; neither have I hitherto found any sufficient reason for supposing that the imago hibernates. The subject is worthy of investigation, and I trust my readers will favour the 'Entomologist' with the results of their researches. The egg is laid on the leaves of several species of Rumex, as *R. obtusifolius*, *R. pulcher*, *R. acetosa*, *R. acetosella* (docks and sorrels); and the larva emerges in a few days, not less than ten and seldom more than fifteen: it is full-grown in about twenty days, and then rests on the under side of the dock-leaf in a flat position, closely appressed to the surface; if disturbed or annoyed it falls from its food-plant, and assumes a crescentic form, the two extremities approximating, but not meeting; after a time it resumes its wonted appearance, and glides over the surface of any object on which it may happen to rest, exactly in the

manner of a slug, no separate motion of the body or legs being perceptible. Head very small, entirely concealed within the 2nd segment; body formed like that of the familiar multivalve-shell known as a Chiton, the divisions of the segments being clearly defined, and the posterior margin of each curvilinear and overlapping the anterior margin of the next succeeding segment; dorsal surface convex, sprinkled with numerous extremely minute warts and slender bristles; ventral surface flat; legs and claspers forming a medio-ventral double series, and each pair being closely approximate and far removed from the margin. Colour of the head dingy green, with a few dark brown markings; of the body opaque apple-green, the warts being white and the bristles sienna-brown: in some specimens the green is interrupted by three stripes of a delicate purplish pink, one of them medio-dorsal, the others marginal. This ornamentation is described as normal, but I have not found it so, uniform green being the commoner colour. When full-fed it attaches itself to the under side of the leaf or to a petiole, and undergoes its change to a pupa, which is obese and short; the abdomen particularly stout; head rounded, without angles or ears; anal extremity also rounded, and without points, the extremity incurved and furnished with extremely minute *cremastræ*, by which it is attached to the web previously spun by the larva; it is also fastened by a surcingle round the waist: the entire dorsal surface and the abdominal portion of the ventral surface are beset with short and stiff bristles, each of which is dilated at the extremity, and has the appearance of a stalked gland, similar to those which occur so commonly on plants: I do not find any of these processes on the cases of the antennæ, legs or wings, but they occur freely on every other part of the pupa. Colour dull pale brown, approaching to putty-colour, and irrorated or variegated with dark brown, approaching to black: these dark markings are grouped into a medio-dorsal series, almost forming a continuous stripe from the head to the anal extremity; they also form three lateral series of spots on each side, of which that series nearest the medio-dorsal stripe is composed of very small spots, and is often indistinct, while the others are invariably distinct and strongly pronounced; similar spots occur on the ventral surface of the abdomen: the dark

irrorations form oblique series on the wing-cases, and also on the cases of antennæ and legs. All my specimens, for which I am indebted to Mr. Moncreaff, appeared on the wing on the 15th of September.—*Edward Newman.*

Life-history of Lithosia caniola.—The moth appears on the wing early in August, and the female lays her eggs on *Trifolium repens* (Dutch clover), *Lotus corniculatus* (common bird's-foot trefoil), and other Leguminosæ, on the leaves of which the larva feeds. The young larvæ emerge in about ten days, and are then of a pale yellowish colour, semitransparent, and bristling all over with hairs: they feed for about six weeks, changing their skins four or five times before they hibernate, eating very little, growing very slowly, and not attaining a length of more than a third of an inch; about the middle or end of September they retire towards the roots of the herbage, and, spinning a very slight web, remain concealed during the winter; in the spring they reascend the food-plant, feeding principally by night, and in damp weather retreating under stones by day, but when the weather is warm and the sun bright they mount on every exposed stone and bask in its rays. The process of changing the skin again goes on, and really seems the chief occupation of life; nor can I say that the number of ecdyses is by any means constant; four or five changes seem to be the allowance for the autumn, and from five to eight for the vernal moultling: at each ecdysis they seem to lose almost all they had previously gained, crawling to the top of their cage considerably increased in size, and coming down again most disappointingly small; they seem to grow alternately larger and less. The extremely different account given by the pre-eminently accurate Guenée, in a former number of the 'Zoologist' (Zool. 8391), must be cited here, lest it should appear that I ignore the labours of that eminent lepidopterist:—"The larva," says M. Guenée, "lives chiefly, perhaps exclusively, on the lichens which grow on walls, and especially on the tiles of roofs." Such is not my own experience here. These larvæ are full-fed on or about the 15th of June, and then roll in a ring and fall off their food-plant if touched or annoyed: it is stony ground where they principally occur, and a small shell—a species of *Planorbis*?—abounds in the same locality, and has almost exactly the appearance, in

form, colour and size, of a rolled-up caniola larva, a circumstance which greatly increases the difficulty of finding them when thus feigning death. In confinement, as at large, they feed exclusively on Leguminosæ, and seek no change of diet, pertinaciously refusing to touch, and indeed appearing to avoid, the lichens that my solicitude for their well-being had provided. Head narrower than the body; when perfectly at rest, partially concealed by the 2nd segment. Body of nearly uniform thickness, but slightly decreasing towards the anal extremity; the segmental divisions deeply incised; the 2nd segment has the dorsal surface scabrous behind the head, the scabrous surface emitting bristles which project over the head; this segment has also two scabrous warts on each side; the other segments have twelve scabrous warts, that is, six on each side, and each wart emits a fascicle of radiating bristles; four of these warts are strictly dorsal; two anterior, smaller and approximate; two posterior, larger and more distant; the third on each side is large and circular; the fourth smaller and linear; and the fifth much smaller, and immediately above the claspers when these occur. Colour of the head black and shining; a white spot on each side at the base of the mandibles. Body with a very narrow black medio-dorsal stripe, bounded on each side by a still narrower and very sinuous gray stripe; this is followed by a somewhat broader smoky black stripe, and this, again, by a sinuous and irregular orange stripe; this last contains, and is interrupted by, the second row of scabrous warts; next on each side follows a broad stripe of smoky black, delicately tessellated with sinuous gray markings; this lateral stripe contains the third series of warts, and also the spiracles, which are pale orange; finally comes a narrow subspiracular stripe of a dingy orange-colour, and this contains a fourth series of warts. The ventral surface is smoky flesh-colour; the legs and claspers rather less dingy. On or about the 8th of July it spins a slight cocoon at the roots of the clover, and changes to a smooth brown pupa: the moth appears at the beginning of August; the males assemble freely, after the manner of Bombyces, to seek the company of bred females. I have not only bred this species myself, but have received a number of interesting details, as well as a liberal supply of larvæ, from Mr. Birchall. The species has not long been

known as British. Mr. Doubleday, with his usual acumen, discovered it in a collection of insects made by Mr. G. King at Torquay, and both Mr. Birchall and Mr. Barrett have taken it near Dublin.—*Edward Newman.*

Description of the Larva of Corycia temerata.—The egg is laid on the leaves of *Prunus spinosa* (blackthorn) and *P. padus* (bird-cherry), at the end of May or beginning of June, and the larva emerges towards the end of June, and is full-fed at the end of July, when it rests in a nearly straight position, with the head protracted on a plane with the body. Head flat, narrower than the 2nd segment, not notched on the crown; body smooth, velvety, uniformly cylindrical. Colour of the head pale green, semitransparent, with a large pear-shaped spot on each cheek, the smaller extremity of which approaches the mouth, the larger extremity the crown; this spot is orange-red in the centre, and black on the margin; dorsal surface of the body grass-green, with a mediodorsal series of elongate orange spots, which occur at the interstices of the segments, and are continuous only on the 3rd and 12th segments; these spots are bordered on both sides with rich brown; the 2nd and 13th segments are not thus decorated; the dorsal surface is also sparingly dotted with glaucous-green, approaching to white: on the sides are a series of spiracle-like black dots, the spiracles themselves being brown, and each surrounded by a glaucous ring: the ventral surface is pale glaucous; the legs pale transparent green; the claspers grass-green, with pink extremities: spins a slight cocoon, and remains in the pupa state throughout the winter and until the following May, when the moth emerges. I am indebted to Mr. Wright for this larva, which was bred from the egg by the Rev. J. Hellins, of Exeter; I have also beaten it, during the past summer, from the blackthorn in Epping Forest.—*Id.*

Description of the Larva of Aspilates citraria.—The egg is laid in May, on the petiole of *Daucus Carota*, *Plantago coronopus*, and several other plants: the young larva emerges about the 17th of June, and is full-fed at the end of July: it rests in a slightly bent posture, with the anterior extremity raised, and on being touched or annoyed it suddenly tucks in its head, and the anterior extremity assumes the form of an Ionic volute; in this posture it remains until the apprehended

danger has passed. Head rather narrower than the body, slightly notched on the crown, the two lobes slightly tumid : body of uniform substance throughout, without humps, but having the skin delicately shagreened ; there is a manifest skinfold on each side, and the skin is also transversely wrinkled ; the 13th segment has below the anal flap two long, conical, acute points directed backwards. Head and body putty-coloured, with numerous narrow, waved, longitudinal stripes of a darker tint ; of these the more conspicuous are five in number and approximate, constituting a dorsal ornamentation ; the middle one, double during a part of its course, is more conspicuous and darker-coloured towards the head, where the others are less conspicuous and paler ; the spiracles are dark brown. On or about the 1st of August it changes in a very slight cocoon among the leaves of its food-plant ; the pupa is rather slender, and much attenuated at the anal extremity ; it is beautifully variegated with two colours, wainscot-brown as the ground colour, and dark umber-brown approaching to black for the ornamentation ; this is disposed in oblique stripes on the wing-cases, leg-cases and antenna-cases ; in rings on the abdominal segments, and in diversified markings on the thorax and back. The moths appeared on the wing on the 14th of August, and the females deposited eggs on the 20th, the young larvæ emerging on the 29th ; they are now very small, and appear likely to hibernate : thus it appears that in confinement the moth breeds twice in the year. I am indebted for specimens of this larva both to Mr. Moncreaff, of Southsea, and Mr. Wright, of London. Mr. Wright and I have succeeded in rearing it on *Polygonum aviculare* (common knotgrass), on which it feeds with great relish.—*Edward Newman.*

Observations on the Moultting, Economy and Pupation of the Larvæ of Antispila Treitschkiella.—The larvæ of the genus *Antispila* have two distinct modes of mining their food, *Cornus sanguinea* (dogwood), some making narrow mines along the margin of their food, whilst others, directly after their birth, form small dark blotches more near the centre of the leaf. As soon as the larva emerges from its dark blotch or narrow track, it makes a small greenish blotch in the leaf. Its first two segments are black ; body whitish ; the under side of each of the segments (excepting the penultimate) has

a black spot on it, and the last segment is tipped with black ; the penultimate segment, on close inspection, is observed to be slightly dusted with several minute black spots on its ventral surface ; when held up to the light the black spots show through the body of the larva, but are somewhat diminished. After feeding a short time the larva undergoes its first moult ; when this has taken place the larva may be observed lying motionless, the margins of the upper and under sides of its head being darkish ; the remaining part is of the same colour as its body : 2nd segment black ; body whitish ; the anterior of dorsal vessel faint reddish : after awhile it recommences feeding, its head in the meantime regaining its original colour ; and as it continues feeding, a curious, but gradual, change takes place in the colour of its body, until at length it becomes dull greyish green. It then moult for the second time, when its mouth becomes light brown, tipped with dull red ; head and 2nd segment black ; body grayish green ; dorsal vessel darkish : after reposing for a short period the colour of its body becomes perceptibly lighter, the dorsal vessel, in the region of the 3rd and 4th segments, assuming a reddish tint ; a day afterwards its body has a clouded appearance ; after this it feeds up rapidly, the colour of its body becoming lighter from day to day, until it becomes grayish white ; head, 2nd segment and spots black, and at the base of the under surface of the penultimate segment there are between eight and ten perpendicular black lines ; dorsal vessel dark, so much so as to prevent any reflection of the ventral spots appearing through the body of the larva. At this stage it is full-fed, and it then sets about the construction of its elliptic-shaped case ; after having lined a portion of the upper and lower cuticle of the mined part of the leaf with brown silk, it commences cutting out its case, and every now and then, after cutting the leaf for a short distance, it binds the edges of its partially-formed case together with silk (the ends of it being purposely left open) ; this course is pursued until it has cut out the whole of its case, excepting a small portion at one end ; the larva then retires to the end of its case that is entirely separated from the leaf, and there constructs, on the outside of each side, three or four white, silken, thorn-like projections ; whilst engaged fabricating these the larva protrudes its body some distance

out of its newly-formed case ; one end completed, it devotes its attention to the embellishment of the other, on each side of which it constructs similar silken projections ; this accomplished, it entirely liberates its case from the leaf, and falls to the ground. The larva now crawls about on the ground for a day or two, at the expiration of which it moults for the third time, its cast-off skin projecting from one end of the case ; its body is then milk-white, the eyes and mouth being represented by so many pale brown spots : in this position it remains stationary during the winter months, and by the following spring the eyes and mouth become dark brown, and its body has a faint red blotch in the centre of its back. About the 10th of May the larva throws off its skin for the fourth time, and enters the pupa state, when its head, body and wing-cases are whitish, mouth light brown, eyes colourless, and the posterior part of the abdomen is light brown ; some days afterwards the eyes become darkish, head and wing-cases very faint brown, thorax white, ventral surface of abdomen white, and the back of the abdomen is faint brown, with a dull brown spot on the back of the 2nd abdominal segment ; this dull brown spot, which deepens in colour, is slightly reflected through the body of the pupa ; the eyes after awhile become shining black, and the mouth dark brown ; the centre of each wing-case has then a faint dark tinge ; on the back of the thorax the outlines of what ultimately becomes a squarish patch of dark pigment makes its appearance, and, after slowly spreading itself over the thorax, head and wing-cases, finally retires into the abdomen, to which it likewise imparts a dark tinge ; while this is taking place the usual markings of the imago gradually develop themselves. In this position the pupa remains until the period has arrived for the imago to appear ; the latter, in its efforts to escape from its case, pushes its pupal covering almost entirely out, and the imago is set at liberty by the pupa-skin splitting open from the head downwards ; the pupa-skin is almost colourless, very thin and transparent, and is slightly tinged with pale brown on each side of the head. What office the silken thorn-like projections on the case are intended to fulfil I am at a loss to conceive, unless they act the part of so many anchors, to prevent the case, when on the ground, from being drifted away ; sometimes the projections have a silken web

interwoven between each, whilst others are, however, quite free from any webbing, and stand out bold and sharp. By continuous observation I find it occupies the larva thirteen hours in the entire construction of its case, eight hours being employed in carpeting the interior with brown silk, and five to cut out the case and add the necessary white silken projections. If, after the imago has escaped from the pupa, we cut open the case, we perceive that during the winter the larva has employed itself in spinning a coating of white silk over the original brown silken lining. The perfect insects keep coming out for a month, and the extent of the life of the imago is nine days. — *Charles Healy; 74, Napier Street, Hoxton, N.*

Observations on the Moulting, Economy and Pupation of the Larvæ of Antispila Pfeifferella. — This larva mines its food, *Cornus sanguinea* (dogwood), like the larva of *A. Treitschkiella*; but I have no particulars to relate respecting its economy whilst feeding in its mine; that it moults I have proof, as I find the presence of a cast-off skin inside the mine. When full-fed its body is grayish white; head brown; 2nd segment brown, darker at the sides; dorsal vessel reddish, and like that of the larva of *A. Treitschkiella*: it coats the part of its food it intends appropriating for its case with brown silk, and afterwards cuts out a similar shaped case, but, unlike the larva of *A. Treitschkiella*, it does not decorate the extremities of the same with silken projections: after cutting out its case it falls to the ground, and crawls about in search of a suitable spot in which to pass its pupal state, and, having fixed upon a locality, the larva throws off its skin; its body is then milk-white; mouth dark brown; eyes black: it then re-lines its case, but this time with white silk; after this the larva, unlike that of *A. Treitschkiella*, retires *under* the ground, and, after moulting once more, enters its pupal state, in which it remains until the following May, when the imago comes forth in all its beauty. It will be observed that, when speaking of the full-fed larvæ of this genus, I have said they fall to the ground after cutting out their cases, and crawl about. The question that will most naturally suggest itself to the minds of my readers is,—How, considering that the larvæ are apodal, can they crawl about, and that, too, whilst enveloped in a case? In answer to which my reply is, that

it is in part effected by the muscular action of the body, but principally by the jaws of the larva. I give two instances by way of illustrating my meaning: here, on the one hand, is a larva that wishes to move sideways; this it effects by giving its body a sudden and violent twist or jerk, by which means it moves its body and case sideways a quarter of an inch or so: on the other hand we have a larva which, feeling disposed to propel its body forward, does so by simply protruding its anterior segments, and, catching hold of any object immediately in front of its head, pulls its body and case forward by the sheer strength of its jaws; by this means the larva, though destitute of legs, is enabled to move about on a level surface with almost as much ease as an *Adela* or *Incurvaria* larva. On first perceiving this peculiarity in their economy I was impressed with an idea that they would possibly recommence feeding, and accordingly supplied them with some unblemished *Cornus* leaves, over which I kept a strict watch for the slightest indication of their having been eaten; continued observation, however, convinced me it was contrary to their habits to partake of any food after having constructed their cases.—*C. Healy.*

Entomological Periodicals.

The 'Entomologist's Monthly Magazine.'—No. 6 contains the following papers on exotic Entomology, all of which are written with the accustomed excellence of the various contributors: that by my friend Mr. Baly is entirely in Latin, the true language of Science. Thus enriched this admirable journal cannot fail to rank high among the current entomological literature of Europe. “On a singular Caddis-worm Case from Ceylon, by R. M'Lachlan.” “New Species of Butterflies from Guatemala and Panamá, by H. W. Bates.” “Notes on the Diurnal Lepidoptera of North-Western India, by Capt. A. M. Lang (with descriptions of new species by F. Moore).” “Descriptions of some uncharacterized Genera of Phytophaga, by J. S. Baly.” There are also a number of minor contributions, of which I give a more detailed notice below, omitting those which have already appeared either in the ‘*Zoologist*’ or ‘*Entomologist*,’ and one or two others which are of no particular interest:—

Ceuthorhynchideus Poweri. Under this name Mr. Rye describes a rhynchophoron which he believes new to Science. Its allies are *C. floralis* and *C. pyrrhorhynchus*; it more particularly resembles the rufous examples of the latter. These specimens were taken in June last, by Dr. Power, at Weybridge.

Oligota pygmaea. Mr. D. Sharp took a single specimen of this insect last September, in a refuse-heap on Shirley Common.

Ennearthron fronticorne. Dr. Power has determined this Panzerian species as British, from a considerable number of specimens found in a fungus growing on an old willow at Weybridge.

Quedius truncicola. Dr. Power took some half-dozen specimens of this insect early in the present year, in some old trees near Esher.

Oligota flavicornis. Dr. Power took this insect in profusion in September last, on one particular lime tree near Esher.

Odontaeus mobilicornis. Mr. De Rivaz took a single specimen of this rare beetle on the road between Twickenham and Hanworth; date not given.

Swarms of Syrphi in the Isle of Wight. Mr. Walker, in alluding to this remarkable visitation, says that *Syrphus Pyrastris* prefers the so-called sycamore *Aphis*, which is limited to the maple, and does not belong to the migratory groups of *Aphides*.

Larva of Leucania comma. — Mr. Buckler describes this larva, which I believe no English Entomologist had previously succeeded in rearing: I hope to publish a full description hereafter in the 'Entomologist.'

Larva of Procris Geryon. Mr. Horton has discovered that the young larva of this species mines the leaves of *Helianthemum vulgare*, and *Procris Statice* those of *Oxalis acetosella*: with regard to the latter, a similar observation had previously been made by M. Guenée.

Chærocampa Celerio. Mr. Borthwick records the capture of this rare insect on the New County Buildings [at Alloa?].

Platypteryx unguicula. Mr. Machin has taken the larva of this species at the same period and in the same locality where I found it in such profusion last year, as already

recorded, namely, on the pollard beeches in Epping Forest, in September.

‘*The Canadian Naturalist*.’—No. 4 of the New Series, dated August, 1864, contains an excellently-written and most interesting paper by Mr. G. J. Bowles, on the occurrence of *Pieris Rapæ* in Canada, from which the following facts appear:—Two lists, very carefully prepared, of Canadian butterflies have been published; the first by Mr. Kirby, in 1837; and the second by Mr. Gosse, in 1839; in neither of which does the name of the species occur; but long since those dates Mr. Bell and Mr. D’Urban have published complete lists of butterflies found on the Lower St. Lawrence and in the vicinity of Montreal, in which the only *Pieris* mentioned is *P. oleracea*: the date of these lists is 1857-8-9. The first specimen of *Pieris Rapæ* was taken in 1859-60, and the species had so increased in three years that its ravages in 1863 were very great, and means were being devised to arrest its progress. The paper is transferred at length to the pages of the ‘*Zoologist*’ for December, as I consider it of great value in proving the natural spread of a species over an extended and new area.

Entomological Notes and Captures.

58. *Argynnис Lathonia* near Ramsgate.—At a Meeting of the West Kent Natural History Society, on Wednesday, October 26th, Mr. W. Groves exhibited a specimen of *Argynnис Lathonia* which had been captured by him on the 17th of September, 1864, in a chalk-pit at Cliffs End, about two miles from Ramsgate; it was in a somewhat wasted condition.—*J. Jenner Weir, Hon. Sec. of West Kent Nat. Hist. Society; October 28, 1864.*

59. *Note on Vanessa Urticæ*.—The larvæ of *Vanessa Urticæ*, and, I surmise, of the genus *Vanessa* in general, are remarkably exempt from the attacks of Ichneumons. Thus I collected (at random from various places), last July, about forty nearly adult larvæ of this insect. Every one of these became a pupa, and emerged in due time. I observe that in rearing butterfly larvæ, if from insufficient or inappropriate

food they have not attained their due size when they enter the pupa state, they make their appearance thereafter with the wings perfect, but are of diminutive size. With moths, on the contrary, under the like circumstances, the wings are usually shrivelled and imperfect.—*J. R. S. Clifford*; 21, *Robert Terrace, Chelsea, November 16, 1864.*

60. *Acherontia Atropos*.—I have been fortunate in securing two fine specimens of this noble insect. One was found at rest upon a log of wood in a timber-yard, and the other upon the side of a small boat, in this port.—[Rev. Sir] *C. R. Lighton [Bart.]*; *Dartmouth, October, 1864.*

61. *Note on Pæcilocampa Populi*.—On November 14th by accident I broke the pupa-case of a *Pæcilocampa Populi*, and pulled out the imago. It lay with its wings unspread during several hours. I was astonished, however, in the evening to find it fully formed, and not a whit the worse for its unnatural birth. On November 16th I found three pupæ of the same insect under the bark of a willow tree. I broke, again by accident, the case of one. The imago perfected itself in half an hour. The other two came out naturally before I reached home, and one, a female, deposited fifty eggs before the next morning. I am satisfied that it was the shock given the pupæ in moving them that brought the imagos out, for some that I procured in the same place earlier in the season, and that have not been touched, are still in pupa. This seems fully to substantiate the fact that *P. Populi* has the power of keeping itself back, though fully formed in the pupa-case.—[Rev.] *E. Hallett Todd*; *Burford, Oxfordshire.*

62. *Crymodes Templi at Howth*.—I took six magnificent specimens of *Crymodes Templi* at the Lighthouse at Howth on the evening of the 4th of October; one of them measures two inches and a half across the wings. What a wonderful little peninsula that is!—five species of Lepidoptera, *Lithosia caniola*, *Dianthœcia capsophila*, *D. Barretti*, *Nepticula acetosæ*, and *Elachista Tarquinella* (found nowhere else), three of them new to Science, besides a host of rarities, and the ground has only been very casually worked for a few days during three or four summers.—*Edwin Birchall.*

63. *Thieves at the Sugar!*—Mr. S. Stevens complains (Entom. 119) very justly of the annoyance he experienced

from earwigs, when sugaring for moths. My own experience this year fully corroborates his assertions. All through the season earwigs have been very abundant, and the ensnaring syrup, spread for the special benefit (?) of moths, brings them together in swarms. Amongst other insects also attracted, but not desired, I have found numerous individuals of a long-legged spider, unknown to me by name; also wood-lice, and, rather to my surprise, the larvæ of *Mamestra Persicariæ* and *Arctia lubricipeda*. These latter I at first supposed were there by accident, till I found them engaged in imbibing the compound, cautiously, however, avoiding the immersion of their feet or claspers in it. The capture of most of the *Geometræ* which resort to sugar is attended with some difficulty; if one can manage to "box" them with the left hand, it is possible, by having a small net in the right hand, to secure some of those that fly off as the tree is approached.—*J. R. S. Clifford.*

64. *Enormous Number of Flies killed by the Fly-papers.*—I noticed in the 'Glasgow Morning Journal' the following paragraph, and, thinking it might prove interesting to some of your readers, I copied it, and have taken the liberty of sending it to you:—"A grocer in Cathcart Street, being annoyed at the superabundance of the fly tribe in his shop, and being of a speculative turn of mind, invested in one of Mather's halfpenny fly-papers, which he placed in the window, on a plate and a little water. After it had lain thus for a week, on the usual turn over of the window on Wednesday afternoon, an immense number of dead flies were collected from it. Astonished at the result, curiosity led the young man to put them in the scale, when he found their combined weight to be two ounces and a quarter. He thereafter tried two drams weight, and on counting them found there were 600 in it. Thus upon calculation it appeared that the two ounces and a quarter would contain 10,800 dead flies. Besides these, it is considered that nearly half as many more would be dusted out of the window during the week, making a grand total of 15,000 of the tribe slaughtered in a week by this housewife's benefactor."—*Andrew Donaldson; Carnegie Street, Edinburgh, October 27, 1864.*

65. *A Bait for Beetles.*—I was out hunting yesterday, and in my travels came across a plum tree in the centre of a large wood. Scores of the ripe fruit were rotting on the ground,

and under the most putrid ones I found *Ips*, *Epurea* (two species), *Soronia* (two species), *Cryptacha* (two species), *Cy-chramus*, and *Haploglossa*. Whether the fellows preferred fruit to their legitimate food I cannot say ; but I recommend the trial in Shirley and other metropolitan woods, where rotting trees with oozing sap are not always to be found.—*George Lewis* ; *Nagasaki*, July 28, 1864.

66. *Fluid ejected by Larvæ*.—I take this opportunity of mentioning a fact in connexion with the subject of the fluid ejected by larvæ as a means of defence. In July last I found a sawfly larva feeding on the leaves of the hawthorn. It had the habit, when handled, of squirting a clear, or sometimes greenish, juice from the anus.—*John Peers*.

67. *Entomological Society, October 3, 1864*.—Mr. Dunning announced the arrival of, and exhibited, a miscellaneous collection of insects from India, collected and presented by Lieut. Beavan. Mr. Janson exhibited an extensive series of insects, of all orders, collected by Mr. Pullinger, chiefly in the neighbourhood of Rio Janeiro. Major Parry sent for exhibition a box of Coleoptera, collected at Gibraltar by his son. Mr. Stevens exhibited a large rhynchophoron, from the body of which a number of filamentous Fungi had grown. Mr. Bond announced that he had found in the crop of a partridge the *Agrotis* larvæ which this year had been so destructive to the turnips and other crops, thus showing the value of the partridge as a destroyer of this pest. Mr. Sharp exhibited three species of Coleoptera new to Britain—*Autalia puncticollis*, a new species ; *Tachinus proximus* of Kraatz ; and *Lesteva monticola* of Kiesenwetter. Mr. Pascoe read a description of a new *Cyphagogus* and a new *Atractocerus*, and Mr. Baly a paper on new genera and species of *Phytophaga*.

Presentation of a Silver Vase to Mr. Saunders.—Prior to the usual business at the Meeting of the Entomological Society of London, held on the 7th of November, a handsome silver vase was presented by the undermentioned Members to their former President, William Wilson Saunders, Esq., F.R.S., V.-P.L.S., Treas.R.H.S., &c., in acknowledgment of the generous aid which for years he has bestowed upon every-

thing tending to advance the science of Entomology, and in grateful recollection of his unvarying kindness, and the constant and liberal support he has given to the Society :— J. S. Baly, H. W. Bates, James Bladon, Thomas Boyd, E. H. Burnell, Rev. Hamlet Clark (Vice-President), Major Cox, Charles Darwin, Earl de Grey and Ripon, T. P. Dossetor, Henry Doubleday, J. W. Dunning (Secretary), James Dutton, George Fenning, Horace Francis, John Gray, Ferdinand Grut, Samuel Hanson, Alfred Haward, General Sir John Hearsey, W. C. Hewitson, T. E. Hughes, John Hunter, W. F. Kirby, J. W. Lea, John Lubbock, R. M'Lachlan, J. W. May, R. Mitford, Frederic Moore, G. S. Mosse, Edward Newman, Major Parry, F. P. Pascoe (President), William Phillips, J. C. Pickersgill, Rev. T. A. Preston, E. W. Robinson, F. O. Ruspin, David Sharp, Edward Sheppard, E. A. Smith, Frederick Smith, H. T. Stainton (Vice-President), Samuel Stevens (Treasurer), H. Tompkins, W. H. L. Walcott, Francis Walker, A. R. Wallace (Vice-President), J. Jenner Weir, Professor Westwood, S. J. Wilkinson, and T. V. Wollaston. On this occasion the Secretary read an address composed for the occasion, and Mr. Saunders made an eloquent reply, expressive of high appreciation of this acknowledgment of his services. In the course of this reply Mr. Saunders alluded in very strong terms to the necessity of working out not only the specific characters of insects, but also their life-histories : he considered the habits and economy of insects one of the most interesting as well as most useful branches of the study, and concluded by saying that his own collections should always be at the service of any Entomologist who desired to make use of them. The address as well as the reply were received with great enthusiasm by the members present.

At Home.—Friday evenings, December 2, 9 and 16, from 6 to 9 o'clock.—E. Newman; 7, York Grove, Queen's Road, Peckham.

 No. 10 of the 'Entomologist' will be dated January, 1865, but will be on sale to the trade at Mr. Van Voorst's, and also at 9, Devonshire Street, Bishopsgate, on the 28th of December, 1864.

THE ENTOMOLOGIST.

No. 10.]

JANUARY, MDCCCLXV.

[PRICE 6D.

Life-history of Bombyx Callunæ. — The male flies rapidly over the heather by day at the latter end of May or beginning of June; its flight is jerking or zigzag, and its object evidently to find the female, who rarely moves until impregnation has taken place; the sexes remain *in cop.* about three hours, and, about two hours after the union has ceased, the female takes wing, and flies over the heather with an oscillating, pendulum-like motion, dropping her eggs at random as she flies, and the eggs, having no glutinous covering, do not adhere to any object which they may accidentally touch in falling: the act of oviposition lasts from half an hour to three-quarters, and when it is completed the exhausted and emptied female hides herself amongst the herbage, and rarely survives the day. The young larvæ emerge on the surface of the earth, or on any object that may have arrested the fall of the egg, and crawl up the stalks and twigs of *Calluna vulgaris* (common ling), their only natural food-plant, although in confinement they will eat freely the leaves of *Betula alba* and *B. glutinosa* (birch). On emergence, which usually takes place during the second, or at latest the third, week in July, the young larva is dark ash-coloured, the incisions of the segments being indicated by two minute orange streaks, each of which is accompanied by a small black spot: after the first moult the ground colour becomes more smoky, the incisions velvety black, and on each segment a triangular orange spot makes its appearance: subsequently these markings become more conspicuous, and at the end of October, when it hibernates for the winter, they are very distinct: it now rests in a straight position, and, if disturbed, falls off its food-plant, and rolls in a ring, with its head slightly on one side. Head prone, scarcely so wide as the body, clothed with soft hairs; body uniformly cylindrical, except that it has on each side of the 2nd segment a small excrescence or wart close to the head; these warts are

clothed with radiating hairs, and every other part of the body is clothed with soft downy hairs. Colour of the head purplish black : body purple opaque black ; dorsal surface velvety black, slightly interspersed with purple-black, and adorned with a median series of brilliant orange transverse markings, each of which is pointed anteriorly and truncated posteriorly ; in fact these markings constitute so many tolerably distinct triangles, with very broad bases, and each triangle is divided near its base by a slender transverse black line : the 2nd and 12th segments differ from the rest in having a transverse band of the same rich colour instead of a triangle : the sides and ventral surface are purplish opaque black, and the legs and claspers are nearly of the same colour ; the soft hairs which clothe every part of the body are gray, but so nearly colourless, and so delicately slender, that they do not in any manner obscure the markings. In April this larva begins to feed again, and in June it undergoes its final moult, having then completed the first year of its existence : after the last moult the dorsal triangles entirely disappear, and an obscure medio-dorsal stripe, caused by the convergence of pale hairs, makes its appearance, partially obscuring the velvety black of the back, which, however, shows itself in transverse bands when the larva crawls, or rolls in a ring : the 2nd segment has a small spot, on each side, of mixed orange-brown and white ; the 3rd and 4th segments have each a lateral transversely oblong spot, larger, but of the same colours ; and the remaining segments, the 5th to the 12th inclusive, have each a portion of an interrupted lateral stripe, of the same two colours, orange-brown and white ; in other respects the sides and ventral surface retain the same purplish hue they possessed in the younger stage. The larva is full-fed in August, and then again retires towards the roots of the ling, and spins a dark brown, oblong, tough cocoon, which it attaches to the stems and twigs of heather, ling, sedges, and other kinds of herbage which constitute the covering of the waste grounds where this species occurs ; and are to be found plentifully by separating the herbage down to the very roots : within this cocoon it changes to a short, obese, dark brown pupa, in which state it continues throughout the winter, and until the following May or June, when the insect, having completed the second year of its

existence, appears in the perfect state. I am indebted to Mr. Backhouse and Mr. Doubleday for a supply of these larvæ, and for many interesting particulars of the economy of the species.—*Edward Newman.*

Life-history of Bombyx Quercus (Oak Eggar).—The male flies rapidly, both by broad daylight and after sunset, at the latter end of July and beginning of August; the female is very lethargic, and rarely moves prior to impregnation; in some instances the males have been observed by hundreds buzzing about and crawling up the herbage in the neighbourhood of a virgin female: after impregnation the female also flies, but heavily, lazily and languidly, and never to the same extent or with the same rapidity as the male; during her slow and oscillating flight she scatters her eggs, which, being unprovided with glutinous covering, do not adhere to any object with which they may happen to come in contact. The young larvæ emerge towards the end of August, and at first are of a somewhat dull ash-colour or smoky gray, the divisions of the segments being marked with orange: they feed on *Rubus fruticosus* (bramble), *Crataegus oxyacantha* (white-thorn), *Prunus spinosa* (blackthorn), *Cytisus scoparius* (broom), and a number of other shrubs: towards the end of October, when they hibernate, they are somewhat more than an inch long, and fall off the food-plant when annoyed, forming a very compact ring, with the head slightly on one side. Head prone, scarcely so wide as the body, and clothed with soft hair: body uniformly cylindrical, excepting a small excrescence or wart on each side of the 2nd segment, close to the head; these warts are crowned with radiating hairs, and every other part of the body is clothed with soft downy hairs. Colour of the head purplish black; body also purplish black, the dorsal surface deeper velvety black, with the 2nd segment almost entirely orange, and the 12th segment having a large orange spot; the intervening segments have each a somewhat lozenge-shaped medio-dorsal ornamentation, consisting of four transverse orange markings, separated only by slender black lines, and the first and second of them intersected by a pure white wedge-shaped mark: the second of the orange markings is much the most wide of the four, and each of its extremities emits a thread-like streak directed forwards, and this streak, interrupted at the incisions, is

continued on the preceding segment; the white wedge-shaped marks, ten in number, form a striking medio-dorsal series; the ventral surface is smoky black, and the legs and claspers are rust-coloured. In the spring they again appear, and commence feeding; after an additional moult the dorsal ornamentation has entirely disappeared. The head is now purplish black; the body velvety black, but densely covered with a short pile of an umber-brown tint, and this again is interspersed with longer hairs; these especially form two indistinct and ill-defined tufts, on each side of each segment, pointing outwards; these hairs are gray at the extremities: the velvety black ground colour shows conspicuously, at the incisions of the segments, as so many transverse black bands, on the posterior margin of each of which is a small white spot; these white spots forming together a medio-dorsal series, but neither the black bands nor the white spots are observable when the larva is at rest, and only appear when it is in active motion, or when rolled in a ring; on each side of the 3rd and 4th segments is a somewhat crescentic white marking, decorated with an orange dot in the middle; a row of smaller white spots form a lateral series just above the spiracles, and each of these is accompanied by minute orange markings; the spiracles are pure white; the ventral surface is smoke-coloured, and the legs and claspers pitchy black. It is full-fed in May, and then, retiring towards the ground, spins a compact, oval, yellow cocoon, and turns to a dark brown and smooth, but not shining, pupa, from which the moth emerges in July.—*Edward Newman.*

Differentiation of the two allied Species, Bombyx Callunæ and Bombyx Quercus.—All differences in Natural History are attractive in proportion to their amount, valuable in proportion to their constancy. In pairs of species the amount of difference decreases as the individuals approach maturity. As regards the pair of species now under consideration, the differences are—1st, in time of appearance; B. Callunæ appears in May, B. Quercus in July: 2nd, in the time occupied in arriving at maturity; B. Quercus takes but one year, B. Callunæ two: 3rd, in food; B. Quercus feeds on white-thorn, blackthorn and broom, B. Callunæ only on ling: 4th, in ornamentation of the young larva; B. Quercus has a dorsal series of lozenge-shaped markings white and orange, B.

Callunæ a dorsal series of triangles orange only : 5th, in pupation ; B. Quercus forms a smaller and yellower cocoon, B. Callunæ a larger and browner cocoon : 6th, in the coloration of imago ; the wing-rays of B. Quercus, in passing through the pale band of the wing, assume its colour ; in B. Callunæ they are darker than the band ; in B. Quercus the lower extremity of the band has a direction towards the abdomen, in B. Callunæ its direction is towards the anal angle of the wing ; this holds good both in fore and hind wings, more especially in the latter : the males of B. Quercus have a ferruginous-brown colour, those of B. Callunæ are umber-brown ; B. Quercus is the smaller, B. Callunæ the larger, insect.—*Edward Newman.*

Description of the Larva of Hybernia rupicapraria.—The eggs are laid in February, on the trunks and twigs of *Crataegus oxyacantha* (whitethorn), *Prunus spinosus* (blackthorn), and less commonly of *Quercus Robur* (oak) ; the larvæ emerge in April, and, wandering among the twigs, are ready to begin eating as soon as the leaves expand : they grow rapidly, and have attained their full size by the end of May or beginning of June. The full-fed larva generally rests with both feet and claspers attached, and the back arched. The head and body are of nearly equal width, the head not conspicuously notched on the crown ; the body velvety and without humps or warts. In colour the variation is extreme ; the head usually semitransparent apple-green ; the more usual colour of the body glaucous-green, approaching to white on the dorsal surface, and to apple-green on the ventral surface ; the white appearance of the back is partially due to the presence of whitish stripes, of which the more conspicuous pair extend on each side from the head to the anal extremity, and divide the dorsal area into three nearly equal parts : the other white markings are irregularly arranged in waved linear series, often imparting a reticulated appearance to the surface ; at each interstice of the segments adjoining the principal white stripes are blotches of darker or olive-green : in the varieties, some of which are extremely beautiful, all the parts usually pale green have become extremely dark bottle-green or almost black, the white markings remaining almost unaltered, and being thrown up in strong relief by the contrast : the spiracles are extremely small and

inconspicuous, pale brown, with a darker margin. It is full-fed by the end of May, and then descends to the ground, and turns to a pupa in a slight web on the surface: the moth does not appear until the following January or February. This larva is very abundant in Epping Forest at the time I have indicated.—*Edward Newman.*

Entomological Periodicals.

The 'Entomologist's Monthly Magazine.'—This invaluable journal gets more and more scientific with each succeeding number. No. 7 contains:—

“Description of a New Species of *Articerus* from Australia, by G. R. Waterhouse.”

“An Essay towards a knowledge of British Homoptera, by the Rev. T. A. Marshall.” An excellent paper: the characters being given in Latin will render this paper as acceptable to our continental neighbours as it is to ourselves.

British Species of Bolitobius. Mr. Rye describes eight British species of this genus: all of these are characterized with the customary care of this able coleopterist.

“Notes on *Tarsophlebia Westwoodii*, a fossil dragon-fly, by Dr. H. A. Hagen.”

“*Cidaria russata* and *immanata*, by the Rev. J. Hellins.” My own paper, now in the hands of Mr. Doubleday, will comprise any new matter brought before us by Mr. Hellins in this paper.

Alterations in Nomenclature. Mr. Rye thinks the *Anisotoma ornata* of Fairmaire, Ann. Soc. Ent. de France, 3rd series, iii. 30, identical with *A. Litura* of Stephens, Manual, p. 104, No. 829; and *Tychius pygmæus* of De Barnevile, Rev. & Mag. de Zool. 2nd series, xii. 167 (1860), identical with *T. brevicornis* of Waterhouse, Proc. Ent. Soc. Lond. (1862). The names *Litura* and *pygmæus*, having the claim of priority, must stand.

A New British Tachinus and New British Aphodius. Mr. Sharp describes *T. pallipes* of Gravenhoorst, and *A. obliteratus* of Panzer, as new to Britain; the latter from two specimens taken at Mickleham: for the former no habitat is given.

Eggs of Trombidium Lapidum. Mr. Westwood notices the eggs of this Acarus as occurring on stones: those who recollect the institution of the Microscopical Society cannot fail to remember also the harvest of lucubrations produced by these familiar objects: great were the doubts whether they were animal, vegetable or mineral: the vegetable hypothesis, however, prevailed, and they were pronounced "minute Fungi." Mr. Westwood has, however, hit the right nail on the head: they are the eggs of *Trombidium*.

Gelechia humeralis. Mr. Barrett has beaten a fine series of this micro-lepidopteron out of thatch at Haslemere: he notices six varieties.

Depressaria olerella. The same indefatigable Entomologist obtained this species (new to Britain) from thatch in Woolmer Forest, in September and October; he thinks the larva feeds on *Achillæa Millefolium* (yarrow): the imago bears a general resemblance to *D. albipunctella*, but is decidedly paler, and has the pale hinder fascia much more sharply angulated.

‘*Young England.*’ — The numbers for October, November and December are principally occupied with lists of captures, which, however interesting to the writer, cannot be so to the reader. Amongst the captures I observe *Coccinella 7-punctata*, *Pieris Brassicæ*, *P. Rapæ*, *P. Napi*, and many of similar ubiquity. The following note by the energetic Editor is of more interest.

“*Notes on the Larvæ of Cosmia diffinis and affinis.*— About the middle and end of last May I beat a great many larvæ of *Cosmia affinis* from the lower branches of elm trees. Most of them answered Mr. Stainton’s description pretty well; but two little ones with black heads, which I had mistaken at the time for *diffinis*, duly appeared as *affinis*. Mr. Stainton, in his ‘Manual,’ says on the larvæ of *diffinis*, ‘head black;’ *affinis*, ‘head green.’ I at any rate obtained two distinct varieties of the larvæ of the latter, which answer the description given in the ‘Manual’ of both species respectively. I also found, about the same time, crawling on some railings under a large elm, from which it had evidently dropped, a pretty apple-green larva of about an inch in

length, with white dorsal and lateral stripes, and with a rich brown head, in shape resembling that of *Cosmia affinis*, and I did not know what to make of it. It was kept separately, and the emergence of a specimen of *C. diffinis* rather surprised me. In the imago state *diffinis* was abundant, and *affinis* appeared to be rare; from which circumstance I should infer that the larvæ of the former fed on the higher, and the latter on the lower, branches of the trees. I hope next year to ascertain if it is the rule that the larva of *affinis* has a brown head."

Entomological Notes and Captures.

68. *Larva of Chelonia villica*.—The larva of this species can scarcely be said to hibernate, as it may be found on most fine days through the winter, feeding on *Achillæa Millefolium* (yarrow), *Beta maritima* (beet), *Stellaria media* (chickweed), and many other plants. It is very common near Southsea beach in autumn, but, owing to the voracity of the birds, few are to be found in spring.—*Henry Moncreaff; Southsea.*

69. *Orgyia pudibunda*.—On the 10th of June, 1862, a female laid eggs which hatched on the 5th of July. In 1864 I watched a female laying her eggs on the stalks of *Lolium perenne* in a clover field, and another female ovipositing on the trunk of a Lombardy poplar. This species emerges from the pupa about 9 o'clock in the evening.—*J. Pristo; Alverstone, Whippingham, Isle of Wight.*

70. *Bombyx Rubi*.—I have found the eggs of this species twice; once on the tip of a bramble-leaf, and once on the stalk of a grass (*Anthoxanthum odoratum*): it also feeds on oak and *Lathyrus pratensis*.—*Id.*

71. *Larva of Lasiocampa Quercifolia*.—Common in autumn near the Salterns, Island of Portsea. The eggs are laid in June, singly, on the leaf of *Prunus spinosa* (blackthorn), the very dwarf plants being preferred: they are hatched in about fourteen days in confinement, and the young larvæ feed up very slowly until the end of October. During this time they have changed their skin three times, and have attained a length of about one inch. Fixing them-

selves to the shoots of their food-plant close to the ground, they lay up for the winter, and commence feeding as soon as the young leaf is expanded. I have found them full-fed at the end of May.—*Henry Moncreaff; Southsea, November 22, 1864.*

72. *Ennomos alniaria* at *Southsea*.—I send for inspection a moth found by one of my children in my own garden, in August, 1863. I placed it in my collection as a dark variety of *Ennomos tiliaria*, but now think it different. I have never taken another like it.—*Id.*

[The specimen, being forwarded in a deal pill-box which was crushed perfectly flat, was of course broken to fragments: the fragments, however, are those of the very rare *Ennomos alniaria*.—*Edward Newman.*]

73. *Larvæ of Aspilates citraria*.—They are very common near Southsea beach in spring and autumn, living through the winter. Although a general feeder, I find most of them on *Daucus Carota* (wild carrot), and on several species of plantain. The imago is on the wing for about ten days in May, and again for the same time in August, the males flying in the sunshine; the females may be found among the grass. They come to light.—*Henry Moncreaff.*

74. *Capture of Dasypolia Templi*.—Last week myself and a friend made a short excursion for the purpose of capturing *Dasypolia Templi*, and, after two days' hard work, succeeded in taking eight specimens: the situation in which we found them was stone-quarries, where heaps of stone have laid undisturbed for some time. *Templi*-hunting is very tiring work; tons of stone must be turned over; for the insect is always found at rest on the under side of the stone, and often at a depth of two or three feet.—*B. Gibson; Wakefield, November 21, 1864.*

75. *Hymenopterous Parasite in Cocoon of Odonestis potatoria*.—During the summer of 1863 I removed the pupæ of *Bombyx Quercus* and others from their cocoons, and in three of them I found an hymenopterous pupa, but could in no way account for their presence in such a place. In this instance all three of the imagines came out; two of them were very small; the third had its wings perforated on one side. In September last a circumstance came under my notice which threw some light on this subject. I captured a

larva of *Acronycta*, and placed it in a box, where it spun up. On removing the cover I ruptured the silken cocoon, and discovered that the larva was about to change into a pupa. I was surprised to see that with the skin it was also throwing off six small hymenopterous larvæ, which spun their cocoons in the cast-off skin. The lepidopterous larva changed to a pupa, which has since dried up. This convinced me that the parasitic pupæ found in the cocoons had been thrown off in a similar manner, as none of the pupæ showed the slightest trace of punctures through which the larvæ could have escaped. May not this arise from the eggs of the ichneumon having been deposited in the larvæ during the later stages of their growth? They would then be ready to enter the pupa state before the parasitic larvæ had attacked the vital parts. These, feeding directly under the skin, would be thrown off with it. Are not the whole of the so-called changes of skin (except the last) merely a throwing off of the epidermis, the last a casting of the entire skin? If not, why were the larvæ thrown off in the last and not with the previous changes? I think, if this were to be properly investigated, Entomologists would soon be able to account for the not infrequent occurrence of a lepidopterous and hymenopterous imago from one cocoon.—*Henry Moncreaff.*

76. *Crickets and Cockroaches*.—My present residence, an old country house, was neither infested with cockroaches nor crickets until very lately. The cockroaches made their appearance about four years ago, and increased so rapidly and to such an extent that every night the kitchen-floor was black with them when the candle had been out about an hour. They made their way into every place, and although we tried every means to kill them they seemed to increase the faster, as if in mockery of our efforts. During last winter the chirp of the cricket was heard by the fire-side, and they increased from the solitary one to a full and noisy chorus, and as they increased the cockroaches decreased, and now (August) there is not a cockroach to be found. It has long been one of the articles of "folk-lore" that the two will not live together, and here is a proof. A neighbour of mine, a large farmer, has lost the crickets and is pestered with the cockroaches, which live and increase in spite of shoe-heel,

traps, poppy-leaves, elder-leaves, or beetle-poison.—*J. Ranson; York.*

77. *Cicada anglica* [hæmatodes, Lin.] in *Surrey*.—Mr. Barrett, to whom we are indebted for so many and such important additions to our insect Fauna, took, last June, a specimen of *Cicada hæmatodes* in a copse near Haslemere: it was flying in the sunshine, down a grassy ride, and pitched among some rushes and long grass, making with its wings a rustling somewhat like that produced by dragon-flies.—‘*Entomologist’s Monthly Magazine*’ for December, p. 171.

78. *Harvest Bugs*.—Will any of your readers try and suggest some remedy for the following serious nuisance? The country round Keevil, in Wiltshire, is infested with minute scarlet insects, which are usually known by the name of “harvest bugs.” These insects appear in thousands between the months of July and October, lasting apparently till the cold weather destroys them; and during this period they will bury themselves in the flesh, and cause such violent irritation as sometimes to produce illness. The country is almost entirely grass land, with fine hedgerow elm-timber: but it is in the garden and orchard, where the grass is kept tolerably short, that these creatures appear to have their head-quarters; and here they attack any intruder upon their colony with such virulence that the present occupier of the place says he will be forced to leave it if he cannot find some remedy for the evil. He and his family are not exceptions; the country labourers and all are affected more or less; and as these latter do not appear to have any “nostrum” or remedy, beyond the application of vinegar and water or ammonia to the place bitten, I am induced to ask if any of your numerous readers, some of whom will surely have experienced this evil, can suggest some remedy. If the garden could be any way treated, syringed or what not, or any preventative be used, the advice will be most gratefully received.—*J. T. D. Llewelyn; Ynisygerwn, Neath.*

79. *Abundance of the Larva of Pieris Brassicæ* (Large White Cabbage Butterfly).—I never knew these so numerous, except on one occasion some years back, when they spread themselves over the country in search of food, and were to be seen crawling over the garden-walls, and on to the foot-paths and pavement, where many were trodden under foot.

This year the cabbages and brocoli in the neighbouring gardens have been devoured, so that nothing remains but naked stems and a net-work of fibres. Observing numbers of large white butterflies among my brocoli, I was forewarned, and prepared for the result; consequently I removed many of the infected leaves, chiefly the lower ones; however, with all my precautions, I did not succeed in ridding my garden of the pest, for innumerable caterpillars made their appearance, and, though destroyed by hundreds, there was no getting rid of them; but on the 9th of September I observed the house sparrows settling on the leaves and perambulating the rows, all apparently engaged in picking the eggs and grubs from off the leaves; so that I am now rewarded for my toleration, not to say encouragement, of this much maligned and persecuted species, of which I have now a goodly flock about my house and roosting in the ivy on the walls.—*Henry Hadfield; Ventnor, Isle of Wight, October 10, 1864.*

80. *Gonepteryx Rhamni*.—In June, 1862, I found several larvæ of this species on the leaves of *Rhamnus Frangula*: they rest on the upper surface of the leaf, close along the midrib, and, being very much of the same colour as the leaf itself, are not easily seen: the first changed to a chrysalis on the 8th of July, and the perfect insect appeared on the 1st of August.—*J. Pristo; Alverstone, Whippingham, Isle of Wight.*

81. *Colias Edusa*.—In 1859 I took a female of this butterfly, intermediate in colour between the ordinary colouring and the pale variety known as *Helice*; it was *in cop.* with a male of the usual colour: I also took two of the variety known as *Helice*. This species was very common in the Isle of Wight in 1859, but I did not see a single specimen in 1860.—*Id.*

82. *Satyrus Galathea*.—In May, 1861, I obtained two larvæ of this species by sweeping grass; one of them was green and the other brown: both of them changed to pupæ on the surface of the earth on the 29th of June, and to perfect insects on the 24th of July: the pupæ of both were dull white, and both proved females: the pupæ were not attached to the food-plant by the tail, as represented in Humphrey and Westwood's 'British Butterflies and their Transformations.' Eggs were laid on the 24th of August, and hatched on the 20th of

September. Exactly eleven months are taken by this insect to complete its transformation. Egg deposited August 24th, hatched September 20th, changed to pupa June 29th, imago appeared July 24th.—*J. Pristo.*

[By Mr. Pristo's calculation it would appear that a month elapses between the appearance of the perfect insect and the act of oviposition. Although in this particular instance I have no doubt of the accuracy of Mr. Pristo's observation, still I can scarcely suppose that this is generally the case. Will Mr. Hellins, Mr. Buckler or Mr. Greene give us the advantage of his experience on the subject?—*E. Newman.*]

83. *Cynthia Cardui*.—I found the larva of this species on the perennial thistle in the beginning of July, 1863: it is solitary, and draws the leaves together with a few silken cords, in the same manner as *C. Atalanta*: it changed to a chrysalis on the 26th of July, and the perfect insect appeared on the 10th of August, being fifteen days in the chrysalis state.—*J. Pristo.*

84. *Thymelicus Alveolus*.—In May, 1863, I found a pair *in cop.*, and put them in confinement: the female laid a number of small round eggs, of a pale green colour, on the stems and upper surface of the leaves of the common bramble, each egg being deposited singly.—*Id.*

85. *Sphinx lineata*.—One specimen was taken by Mr. Winchester, at Osborne, in 1860; another by Miss More, at Bembridge, on the 21st of May; another by Mr. Rogers, at Freshwater, on the 20th of May; four or five at Brighton, one at Exeter, and three at Torquay.—*Id.*

86. *Dicranura vinula*.—When young the larva of this species rests exposed on the upper surface of a willow-leaf during the day, sitting on a little pad of silk which it has prepared for the purpose; when larger it rests in a similar manner on the twigs or leaf-stalks: the colour alters at every change of the skin. The larva spins in about ten or eleven weeks: in 1861 a specimen in my possession spun up on the 14th of July, and the perfect insect appeared on the 5th of June following, being nearly eleven months in the pupa state. On the 29th of May, 1864, I observed that a cocoon had been moistened at 10 or 10.30 A.M., and the imago appeared at 11.30, and the wings were fully developed at 12: it was resting at this time with the points of its wings hanging down

and meeting over the back; these were closed down at 12·30, so that two hours elapsed between the moistening of the cocoon and the insect attaining perfection, but the wings were not wholly hardened at this time.—*J. Pristo.*

[It has often occurred to me as a curious subject of inquiry how the intensely hard cocoon of the puss moth becomes sufficiently softened to admit the passage of the imago: what is the fluid employed? where is it elaborated? and how does it escape? As far as my observation has extended, there is no external opening of an œsophagus in the puss moth, nor in many other Bombyces and Pseudo-Bombyces.—*Edward Newman.*]

87. *Coleophora Artemisicolella*, Bruand.—In September, 1863, in procuring larvæ of *Eupithecia succenturiata* on *Artemisia vulgaris*, I met with a few cases of the above; in November they left their food, and fixed their cases to the sides of the glass where the muslin covers the top, and remained so till the end of the past July, when to my surprise several of the cases were moving about: on supplying them with fresh food, on the top of the old dried seed, they commenced feeding. From the fixed cases I had some two dozen moths in July and August; the remainder of the cases have taken up their "long vacation," and I presume will appear in the moth state next August; so two years is the time to produce this small moth.—*R. S. Edleston; Bowdon, near Manchester, December 9, 1864.*

88. *Amphydasis betularia*.—Some sixteen years ago the "negro" aberration of this common species was almost unknown; more recently it has been had by several parties. Last year I obtained the eggs of a female of the common form, which had been *in cop.* with a "negro" male: the larvæ I fed on willow, and had this year some remarkably pretty aberrations, the connecting-link between the "negro" and the usual form, but far before either as regards beauty: I placed some of the virgin females in my garden, in order to attract the males, and was not a little surprised to find that most of the visitors were the "negro" aberration: if this goes on for a few years the original type of *A. betularia* will be extinct in this locality.—*Id.*

89. *Coleophora orbitella*.—I captured a male and female of this variety by beating a small birch on Carrington Moss,

July 27th: the common heather must be its food-plant; I never met with it except on small birch trees growing in the heather.—*R. S. Edleston*; *December 9, 1864.*

90. *How to Look for Notodonta Carmelita*.—From the 10th of April until the 21st I believe to be the best time; I never knew it taken sooner than the 10th nor later than the 21st, having noticed its time of appearance in the North for many years. It is generally found upon the trunk of the birch tree or the oak, about mid-day, from four to six feet up the stem. Although I have seen many specimens taken, I never saw an imperfect one; all seemed as if just emerged from the pupa.—*George Mawson*; *Cockermouth.*

91. *How to Look for Cymatophora ridens*.—The same dates apply to *C. ridens*: the 15th of April I have found the most successful time for the search: it is taken upon the trunk of the oak tree, mostly from one to four feet up: being nearly the same colour as the bark it is very difficult to see, and is often passed by. *C. ridens* requires some patience, as every oak tree in the wood ought to be looked at. I have looked from 7 until 12 o'clock without taking one specimen, but by persevering in the search I have taken one dozen before leaving the wood. The larva of this species may be taken in June by carefully looking over the leaves of the oak that are drawn together, as it draws two leaves together for protection.—*Id.*

92. *How to Look for Notodonta trepida*.—This species may be taken from the middle of May to the middle of June, in the same way as *Cymatophora ridens*. The larvæ may be beaten from the oak about the end of June or the second week in July.—*Id.*

93. *Lobophora viretata and L. polycommata*.—These may be taken the first week in May by carefully examining the mountain ash. *L. viretata* is generally about four feet up the stem, *L. polycommata* generally getting close down to the grass, and often concealed by it from view. I have often tried, but never succeeded in getting the eggs of *L. viretata*.—*Id.*

94. *Dying of Caterpillars*.—All my larvæ of *Hadena rectilinea* died about three weeks ago: I much regret I have not succeeded in rearing it. I find those of a similar nature very difficult to keep alive over winter, *Aplecta tincta* for

instance. The larvæ fed well and looked well up to the very last, changed their skins very frequently, and always kept the same in colour and markings. I hope you are succeeding with yours.—*George Mawson; Cockermouth.*

[I regret to say I have failed also: vast numbers of larvæ fail in this way: after having nearly attained their full size, and while apparently in excellent condition, and surrounded by abundance of food, they fall from their food, or hang from it attached by their claspers, quite dead, and if examined appear to be mere bags of water.—*Edward Newman.*]

95. *Superabundance of Common Larvæ.*—In some of the woods near here, by the end of April this year (1864), and in strips of two to three hundred yards of the wood, the leaves of every tree were consumed by the larvæ of our common autumn moths, especially *Oporabia dilutata*, *Hybernia defoliaria*, *Cheimatobia brumata*, *C. boreata*, &c., thousands of the larvæ dying for want of food.—*George Mawson; Cocker-mouth.*

96. *Something New in Spiders.*—A writer in the 'Liverpool Mercury,' desirous to establish the fact that insects suffer pain, relates the following anecdote:—"I know an instance of a spider having been accidentally shut into a hot oven by a servant girl, and the poor thing in its pain screamed so as almost to freeze the blood of the listener! Who will say that this spider felt no pain? As for beetles, if you pour a little boiling water upon one it will die in an instant; and I firmly believe that there is no animal, however low in organization, that is not as capable of feeling pain as the most delicate lady."—*Edwin Birchall; December 13.*

At Home.—Friday evenings, January 6, 13 and 20, from 6 to 9 o'clock.—*E. Newman; 7, York Grove, Queen's Road, Peckham.*

 No. 11 of the 'Entomologist' will be published on the 1st of February.

THE ENTOMOLOGIST.

No. 11.]

FEBRUARY, MDCCCLXV.

[PRICE 6D.

Life-history of Cidaria russata.—This species is uniformly double-brooded: the eggs which produce the spring brood are laid about the middle of August; those which produce the autumnal brood are laid about the middle of May: the larvæ from this second brood hibernate, or rather live through the winter, feeding at intervals when the weather is mild: the egg is flattish or depressed on the crown, and of a dingy yellow colour, “resembling that of a pale-tinted chip-box;” it is laid on the leaves of *Fragaria vesca* (wild strawberry), and also, according to Guenée, on birch and white-thorn, and according to Mr. Hellins “on sallow:” the young larvæ emerge about fourteen days after the egg is deposited, and are at first of a dirty white, but soon acquire a green tinge, which continues to increase as they advance toward maturity. When full-fed this larva usually rests in a straight position, but when annoyed or disturbed tucks in its head, bringing it in close contact with the legs, thus causing the anterior half to assume the volute form. Head about the same width as the 2nd segment, not notched on the crown, slightly hairy: body almost uniformly cylindrical, but somewhat restricted immediately behind the 4th segment, which is produced ventrally into a lump, on the summit of which are seated the third pair of legs; the 13th segment below the anal flap is produced into two parallel, “acutely”-pointed processes directed backwards. Colour of the head pale opaque green, with conspicuous black ocelli; body pale yellow-green, with a medio-dorsal stripe, narrow and indistinct, of a darker, duller green; there is also on each side a paler stripe, equally indistinct; and in many specimens, below this subdorsal stripe, a lateral, but often interrupted, rosy red or purple stripe: this red stripe is accurately described by Guenée, but when I wrote my former description of this larva (published Zool. 7763) I had never seen this variety, and therefore left it unnoticed: it is also to be remarked that

both Mr. Edleston and Mr. Wright have never met with it, but Mr. Doubleday assures me it is of common occurrence, and he has now examples feeding which exhibit the stripe in the clearest manner: the transverse skinfold at each segmental division is yellowish, and over the entire surface of the body are scattered minute white warts, each of which emits a slender hair, and is surrounded by an area slightly darker than the prevailing ground colour: anal processes generally tipped with rose-colour, and the legs and claspers tipped with dull purple. When full-fed it spins a leaf together with a few slight threads, in the manner of a spider's web, and in this flimsy retreat turns to a delicately green semitransparent pupa. The moth is on the wing in May and August. I am indebted to Mr. Huckett and Mr. Wright for a supply of the larvæ.—*Edward Newman.*

Life-history of Cidaria immanata.—This species is uniformly single-brooded: the eggs are laid in August, on the leaves of *Fragaria vesca* (wild strawberry); they are rather flat, and of a primrose-yellow colour, in some instances with a reddish tinge: the young larvæ emerge towards the end of March of the following year, and are then yellow, but after the first moult acquire a green tint, and the colour continues to change as the spring advances, until the end of May or beginning of June, when they are full-fed, and then are almost precisely of the same colour as the leaf on which they are feeding: when young they drill small circular holes in the strawberry-leaf, but when older feed in the usual manner at the edges. The position in which the adult larva rests is usually perfectly straight, but on being annoyed it raises the anterior part of its body and tucks in its head, which is brought into contact with the legs, and the whole crowded together: if the annoyance is continued the anterior part of the body is curled into a compact volute. Head about the same width as the 2nd segment, not notched on the crown, slightly hairy; body almost uniformly cylindrical, but somewhat restricted immediately behind the 4th segment, which is produced ventrally into a lump, on the summit of which are seated the third pair of legs: the 13th segment below the anal flap is produced into two parallel "bluntly"-pointed processes directed backwards. Colour of the head uniform dingy green, the ocelli black and conspicuous; body apple-

green, with narrow inconspicuous stripes of a darker hue ; the principal of these is medio-dorsal ; the others, in the region of the spiracles, are extremely difficult to distinguish, and have a median, hair-like, whitish line ; a transverse skinfold at each segmental division is yellow : the body is beset with minute white warts, each of which emits a slender white hair, and is surrounded by a green space rather darker than the rest of the body ; the tips of the anal processes are rosy ; the legs and claspers green, tinged at the extremities with purple. When full-fed the larva either goes down into the moss usually kept in the breeding-cage, or selects a dried leaf, fastening the moss or the edges of the leaf together with a few silken threads ; within this flimsy retreat it changes to a smooth, green, semitransparent pupa. The moth first appears on the wing about the middle of July ; a succession of fresh specimens are kept up until the middle of August. I am indebted to Mr. Edleston for a supply of the larvæ, and to that gentleman and Mr. Doubleday for several particulars of their history.—*Edward Newman.*

Differentiation of Cidaria russata and C. immanata.—Mr. Hellins, whose observations have at different times thrown so much light on the life-history of our native Lepidoptera, has turned his attention to the difficult task of distinguishing between this closely-allied pair of species. His first paper, treating of the imago, is published in the 'Zoologist' (Zool. 8986) ; his second paper, treating of the preparatory states, appears in the 'Entomologist's Monthly Magazine' (E. M. M. 165). I have freely availed myself of both these papers, and still more freely of my friend Mr. Doubleday's assistance, to whom Mr. Hellins fully acknowledges his obligation for much of the information he has given to the public. From these sources, far more than from my own observations, the following summary results. *First*—The time of appearance in the imago state differs : *C. russata* appears in May and again in August, the May moths being the parents of the August moths : *C. immanata* appears in July : thus the single brood of *C. immanata* is intermediate between the two broods of *C. russata*. *C. russata* certainly hibernates in the larva state, but *C. immanata* passes the winter in the egg state. *Secondly*—The habit of the imago differs : *C. russata* has the habit of a true Geometer, when at rest with

its wings deflexed; *C. immanata* rather resembles a Deltoid: and this difference arises from a difference in structure, the fore wings of *C. immanata* being somewhat narrower and somewhat more pointed, in some individuals almost falcate. *Thirdly*—The *colour and markings*: both species vary greatly in colour, especially as regards the disk of the fore wings, the extremes being dark smoky almost black, and pale cinereous almost white; but *C. russata* has a very common variety in which the disk is fulvous: *C. immanata* has no such variety: *C. immanata*, moreover, has two narrow, waved and angulated, transverse, chesnut bands on the fore wings, which are never so distinct in *C. russata*: moreover, there is a difference in the exterior outline of the broad central band of the fore wings; “in both species this commences at the costa, at about two-thirds of the distance between the base and the tip, and runs across the wing for a little way with very small teeth, then shoots out into a large bilobed (sometimes, in *C. russata*, trilobed) tooth [projection], which is followed by another not quite half as large, and, lastly, slants away to the inner margin, forming three more teeth not much differing in size, but the distinction is this, that in *C. immanata* these teeth, especially the largest of them, are more prominent and acute; in *C. russata* they are not so prominent and often rounded.” *Fourthly*—The larva of *C. russata* is dull ochreous at first, but afterwards brightish green, and often ornamented with red on the sides: the larva of *C. immanata* is bright yellow at first, but afterwards dull green, and never ornamented with red on the sides: Mr. Hellins also says that the anal points are *acute* in *C. russata*, *obtuse* in *C. immanata*. I have described both larvæ from nature without observing this, but have added these words in inverted commas, as quoted from Mr. Hellins.—*Edward Newman.*

Description of the Larva of Acronycta strigosa.—The egg is laid at the end of June, on the twigs of *Crataegus oxyacantha* (whitethorn), more particularly in old whitethorn-hedges, growing in chalky districts throughout the neighbourhood of Cambridge: the larva emerges in July, and is usually full-fed at the end of August or beginning of September. Head porrected, flat, of about the same width as the 2nd segment: body of nearly uniform width throughout; the segments strongly pronounced, the divisions between them

deeply incised ; there is a double series of bristle-bearing warts down the back—two each on the 3rd, 4th, 6th, 7th and 10th segments ; four on the 5th, 8th, 9th, 11th and 12th segments. Colour of the head umber-brown, with very dark reticulations on the cheeks ; colour of the body delicate apple-green, with a well-marked medio-dorsal stripe, of a rich purple-brown colour ; this is dilated on the 2nd segment immediately behind the head, also on the 5th, 8th and 9th segments ; thence it decreases in width, and on the 12th and 13th segments is very narrow ; the spiracles are white in a brown ring ; the legs and claspers green, red-brown at the extremities ; when full-fed it spins together any dead leaves or rubbish within its reach, or buries itself in decayed wood, if it have the opportunity ; and, thus concealed, it changes to a pupa, and remains in that state throughout the winter, the moth appearing on the wing in the June following. I am indebted to Mr. Brown, of Cambridge, for the opportunity of describing this larya.—*Edward Newman.*

Entomological Notes and Captures.

97. *Pill-box versus Laurel-box.*—I am an advocate for both plans, for I cannot as yet make up my mind which has most advantages on its side. *First—Pill-box advantages.* (1). Each box takes *one* moth, and so they do not rub against one another. (2). Eggs are often the result, which in a laurel-box would be destroyed. (3). One has the pleasure of seeing the insects *alive* on the following morning (I keep them till then and chloroform them *all at once*, putting pill-boxes and all into an empty plum-jar, and dropping in on flannel the killing fluid). *Secondly—Pill-box disadvantages.* (1). Some species knock themselves to-pieces before the morning (this I cannot of course get over), but they are not so very many. (2). The pill-box may decapitate, or otherwise injure : an experienced hand never (seldom ?) does this. (3). The insect becomes stiff sooner than in the laurel-box. *Thirdly—Laurel-box advantages.* (1). The insect is destroyed at once, and *kept* relaxed, so that it does not beat itself about, and allows better setting of the legs and antennæ. (2). The colour is not injured (?). *Fourthly*

— *Laurel-box disadvantages.* (1). The insects are longer dying (I do not believe myself that insects feel pain, so this is no objection on my part). (2). The insect often recovers when on the board, though apparently quite dead when put there. (3). In autumn, winter and early spring the laurel-leaf loses much of its strength. (4). To be efficacious new leaves should be used every day, which is often inconvenient at the time when wanted. (5). The advantages lost in not using chloroform.—These, then, are my reasons, *pro* and *con.* The most subtle against laurel-box are (2), under the head “Pill-box advantages,” and (2) and (3), under the head “Laurel-box disadvantages.” I gave up laurel for chloroform for these reasons, but I lose some moths from their beating the tips of their wings off in the pill-boxes before the morning: instance *Diloba cæruleocephala* and *Poecilocampa Populi*. I never carry chloroform in my pocket. It is difficult to use out-of-doors, and too expensive to waste.—[Rev.] *E. Hallett Todd: Windrush, Burford, Oxon, December 29.*

98. *Pill-box versus Laurel-box.*—Through the kindness of the writer of the above, I was enabled to see his communication before it was sent to the ‘Entomologist,’ and can therefore at once make one or two short observations upon it. I will commence with the disadvantages which Mr. Todd thinks the use of the tin box entails. (1). The insects are longer in dying. This is true, if laurel-leaves be used for the purpose of *killing* insects. But I never employ them in that way. They are only intended to *stupify*. When thus stupified they are *killed* instantaneously with oxalic acid, and, if it be desired to kill the insects on the spot, a small glass stoppered bottle of the acid may be carried in the waistcoat pocket. (2). “The insect often recovers,” &c. This I can easily believe; but an insect killed as above (*i. e.* stupified with the laurel-leaves, and then pierced with oxalic acid) never recovers; at least I never knew an instance. I was rather surprised to find this particular objection brought forward by Mr. Todd, as I had always understood that it was admitted, by the admirers of *chloroform*, that insects killed, or rather supposed to be killed, by it, frequently came to life again. Thus Mr. Crewe, writing against chloroform, alleges that, in nine cases out of ten, insects submitted to it recover again after a time. I have myself seen this over and over again. Objection (3). True to some extent; but,

if well bruised, I have always found them sufficient for the purpose. The moths I took here on ivy at the end of October were stupefied under a minute. (4). There is certainly a *little* trouble in collecting and bruising fresh laurel-leaves, but surely that is of small moment. (5). "The advantages," &c. The alleged advantages are:—(1). That each box contains only *one* moth, and therefore they cannot rub against each other. But they can, and often *do*, rub against the box itself, as is admitted. I believe that many a *polished* thorax which meets the expectant gaze of the collector on the following morning, if left alive (which is Mr. Todd's second recommendation), is due to a *pas seul* which takes place during the night. (2). This, if correct, would, I at once grant, be an unanswerable objection. But it is an error. If a moth be *killed* by laurel-leaves, there will certainly be no eggs; but if only stupefied, and afterwards put into a box, it will, if so "dispoged," lay its eggs just as readily after as before the operation. Let me here add one valuable use of the tin box, which I did not refer to in my first communication. Most collectors have probably experienced considerable difficulty in safely killing *bred* insects, especially Geometræ. I mean supposing them to be killed with oxalic acid, and not chloroform or ammonia. Of course an insect, to be killed with oxalic or prussic acid, must first be pinned. This is a very difficult operation to be performed successfully on a delicate Geometra, if not first stupefied. This is done so admirably by means of the tin box that I should keep one or two of them for this purpose alone. I have thus answered, to the best of my ability, Mr. Todd's observations, which are, I think, very much to the purpose. I feel I cannot but admit that pill-boxes have many advantages, but I cannot get over the "knocking about." Some insects *do* knock about, *more*, I imagine, than the advocates of the pill-box are willing to allow. What about the *male* Bombyces? And, further, who shall say how many insects, unknown to us, get the cilia injured, or the wings slightly rubbed, while in the durance vile of a pill-box?—[Rev.] *J. Greene*; 4, *Cary Parade, Torquay, January 7, 1865.*

99. *Note on Dicranura vinula.*—As I can boast of a pretty extensive acquaintance with this moth of historic celebrity, I may venture to offer a few remarks upon its habits and changes, supplementary to those at page 149 of

the 'Entomologist.' My own record of the time of its existence in the larva state differs from the statement of your correspondent. Six weeks, or a day or two beyond, is its invariable period, at least in the vicinity of London. It is well known that various causes (temperature for instance) will accelerate or retard the growth of a larva; in this case the locality mentioned appears, to me at least, more favourable to a rapid development. The "pad" of silk referred to is, I think, only spun by the larva at the different periods of ecdysis, although it may occasionally continue upon it for a short time beyond, until it has consumed the leaves which are immediately around it. Upon the subject of the moth's extrication from the cocoon many speculations have been advanced, some of the older naturalists attributing the result to friction, others to a solvent fluid. I have no doubt this latter is the agent employed. It has usually been my practice to remove the pupa from the cocoon previous to emergence. Of course, though the solvent is not then needed, it would still be ejected by the moth; and I have, in fact, often seen this liquid on the moth's first appearance from the puparium. It appeared certainly to flow from the head, of sufficient quantity to form a bead, of a lightish pink colour, which rested just above the first pair of legs. I believe it to be of a powerfully acid nature, for, having on one occasion got a little of it under a finger-nail, I found a slight irritation produced by it. On one occasion, when I had reared a number of these larvæ in a common habitation, some of them made their cocoons in clusters. When examining them I invariably found that those individuals upon whom several other cocoons had been superimposed were dead, perhaps from an exclusion of air.—*John R. S. Clifford; 21, Robert Terrace, Chelsea, December 9, 1864.*

100. *Scarcity of Bombyx neustria.*—This insect has been exceedingly scarce in the west and south of the vicinity of London for some years. Last year I only picked up a solitary larva. I should be glad to hear whether, in other localities, it has appeared as usual. Far different was it with that common *Tinea, Yponomeuta Padella.* In many places, last summer, near my residence, countless numbers of these larvæ appeared, extending their ravages from the hawthorn, their favourite food, to all other shrubs growing near, care-

fully avoiding, however, the privet and elder.—*John R. S. Clifford.*

101. *Crickets and Cockroaches* (see Entom. for January, 1865, p. 146).—Mr. Ranson's note l. c. will, I think, call up other cockney sportsmen besides myself. The noble art of "Venerie," as far as regards the "World of Insects," is elaborately taught and largely practised in this great metropolis: we have flea-powder, phosphorus-paste, wafer-bread, catch-'em-alive-ohs, papier moure, and a hundred other contrivances for entrapping or slaying the unwary; and Mr. Ranson is not the first to propose the patronizing of crickets on account of their presumed tendency to extirpate, or at least to drive away, the cockroaches: regarded as hypothetical the idea is excellent, but reduced to practice it is scarcely so satisfactory: my own experience is that the two creatures live together in exuberant abundance, and in the most sociable communion, in the kitchen of—*Edward Newman; 7, York Grove, Queen's Road, Peckham.*

102. *Preservation of Larvæ.*—May I invite the attention of the readers of the 'Entomologist' to the very important subject of preserving the larvæ of the Macro-Lepidoptera? I cannot fancy a collection of these insects complete without the addition of the larva and pupa of each species: this would not interfere with the ordinary arrangement of them. I certainly do not see the feasibility of the method recommended by Mr. Blackburn in No. 2 of the 'Naturalist,' viz., after destroying life, to make an aperture at the anus, and squeeze out the whole of the contents of the body, then inflate by means of a small straw, and finally secure by tying a piece of silk, the *same colour as the larva*, tightly above the incision, to prevent the wind escaping. What a grotesque appearance must a larva thus operated upon present! I have heard of a "bloated aristocracy," but that is no reason why we should have absurd and unnatural-looking larvæ in our cabinets. Mr. Blackburn tells us to squeeze out the *whole* of the internal parts, and of course this is absolutely necessary for the preservation of all larvæ; but after doing so, if we follow Mr. B.'s method of inflating, what is to prevent the wind escaping through the mouth and spiracles? As to the method of restoring larvæ to their original size and shape, of course nothing better than cotton wool can be

used; but the desideratum is to know what liquid should be used as a preservative, either before or after the bodies are emptied. On Saturday afternoon, December 31st, I put two or three larvæ of *Agrotis Segetum* into weak spirits of wine (I say *weak*, because, after an immersion of ten minutes the larvæ showed evident symptoms of life), and allowed them to remain in the spirit until Monday morning, when, upon looking at them, I found them as black as a piece of coal, and of course utterly spoiled. I should therefore feel greatly obliged to you or any of your readers for information on this subject.—*Henry Reeks; Manor House, Thruxton, Andover, January 16, 1865.*

[A very excellent subject for inquiry: like Mr. Reeks I find that spirits of wine turns my larvæ black, and shall be greatly obliged for a remedy. I have obtained a gross of small vials for the express purpose of containing larvæ, and there is not now a single specimen with recognizable colours.—*Edward Newman.*]

103. *Singular Geographical Race of Hepialus Humuli.*—There has just been added to the British collection in the British Museum a most abnormal series of *Hepialus Humuli*, taken in the Shetland Islands. I am unable to decide on the sex of each specimen; indeed, so extremely puzzling is the appearance of the series, that I have been led to doubt the accuracy of the conclusion at which Entomologists have arrived, that all the specimens of *Hepialus Humuli* with white wings are males, and all those with fulvous wings females. In some specimens the fore wings are tinted with yellow, while the hind wings are pure white; in others the fore wings are pure white, the hind wings dark fuscous. In those specimens supposed, from their general appearance, to be females, the tint is paler than in our southern specimens, and more approaches a dull lemon-yellow than fulvous: the body is uniformly dark fuscous, and the hind wings, when tinted at all, are of the same dark colour: Mr. Bond exhibited these insects at the last Meeting of the Entomological Society, and made some observations respecting them. Should these specimens prove anything more than a geographical race, and be received as a species, I would propose for them the name of *Hepialus thulensis*.—*Edward Newman.* P.S. Can any Entomologist inform me how to

distinguish the sexes of *Hepialus Humuli*, leaving colour and size out of the question?

104. *Migration of Butterflies.*—I saw another flight of white and yellow butterflies (Callidryas) the other day, some three leagues from here, and going exactly in an opposite direction from that before noted,—from south-east to north-west, along the Valley as it lessens, which perhaps may have caused deflection of course,—not so numerous as the previous one, but still very well marked. Whilst the fellows drove ahead steadily, I observed others, precisely similar in look, fluttering about as usual, and evidently not taking part in the migration; just as in Ireland I suppose you would find some Paddies looking after pig and praties, in spite of the rush to the Untied States of America of the mass of the bog-trotters. I have not observed any migration of butterflies except of the genus Callidryas.—*Henry Birchall, in a Letter to his brother, Edwin Birchall.*

Entomological Society.

November 7.—After the presentation of the vase to Mr. Saunders, as recorded in No. 9 of the 'Entomologist,' Mr. Janson exhibited four species of Coleoptera from the collection of Mr. Sidebotham, of Manchester, all of them new to the British list. 1. *Ceuthorhynchideus Poweri* has already been noticed (Entom. 131). 2. *Lixus filiformis*, *Fabr.*; a single specimen (at first taken for *L. bicolor*) captured by Mr. Sidebotham by beating the oak or birch in a wood on the side of Roundney Hill, near Devizes, early in June, 1864. 3. *Sybines canus*, *Herbst*; two specimens taken by Mr. Sidebotham, by sweeping, in a lane between Devizes and Pottern, early in June, 1864. 4. *Peritelus griseus*, *Oliv.*; several specimens were collected at Ventnor, in April, 1864, by Mr. Wainwright, probably by shaking herbage upon a sheet of paper, in which manner some bottles full of Coleoptera had been obtained by that gentleman.

Mr. F. Smith exhibited three males and a female of a *Bombus* new to Britain, the *Bombus Pomorum* of Panzer; the males were captured some years ago, and had been placed in his collection as a variety of another species; the

female was the specimen exhibited at the Meeting in June last, and was captured at Deal.

Mr. Edwin Shepherd (on behalf of Mr. S. Carter, who was present as a visitor), exhibited three males and a female of *Sesia spheciformis*, *W. V.*, bred from pupæ found in the stems of alder-trees in the north of Staffordshire.

Mr. Saunders exhibited some galls which he had found in making an excavation at the foot of an oak about a month previously ; the galls were attached to the root of the tree, but were not in clusters, and were at a depth of four feet below the surface ; each gall contained two or three larvæ, and during the last few days five specimens of the perfect insect had gnawed their way out ; at first a very small hole was visible, through which, when it had been made large enough, a mandible was pushed ; the insect continued its gnawing, an antenna was soon protruded, and gradually a perfect Cynips emerged. The whole of the five specimens were females, and he believed that the whole brood would prove to be of that sex.

Mr. Saunders also exhibited three other kinds of gall which he had found during a recent trip to Switzerland. The first was found on a glaucous-leaved willow, and occurred near the Lake of Brienz : it resembled a small fir-cone, or might even be likened to the flower of a *Centaurea* : no larvæ were discovered, but traces of their action were visible, and the cause of the excrescences was doubtless a Cynips. The second kind was found in July near Coire, where a dwarf and stunted species of willow was covered with red berries looking like so many red currants ; these also were doubtless due to a Cynips. The third kind was formed on the beech, and was an indurated conical gall, so hard as with difficulty to be cut with a knife, but nevertheless made on the leaf of the tree ; it was hollow, with a large flat base in which the larva nestled, and was found at Ragatz and at Interlaken and in other parts of Switzerland in July and August.

Mr. Stainton exhibited a gall found on the oak near Bath, the exterior of which was of a woolly texture and of yellowish colour.

Mr. Smith read a most interesting extract from a letter addressed to him by Mr. Stone, on the larvæ and pupæ of

Ripiphorus, remarking on the great discrepancy in size, and suggesting the possibility of the existence of a second species of *Ripiphorus*.

The other papers related to foreign Entomology, for which cannot afford space.

December 5.—Mr. J. Jenner Weir exhibited some microscopic preparations of the spiral tongues of butterflies, for the purpose of showing the diversity of striation of the spiral tongue in different species, and of certain papillæ existing at the end of that member; the papillæ in *Vanessa C-album* were very different from those of the closely-allied species of *Vanessa*, whilst in the genus *Argynnus* they were found to be extremely brittle.

Mr. Bond exhibited a coloured drawing, by Mr. Buckler, of the larva of *Acronycta strigosa*, feeding on hawthorn: and a photograph of a remarkable negro variety of *Abraxas Grossulariata*.

Mr. F. Smith exhibited a parti-coloured wasp's nest belonging to Mr. Stone, of Brighthampton. Mr. Stone had a nest of *Vespa germanica* in a window on the ground-floor, and in a corresponding position in the first-floor window, immediately over the other, was a nest of *Vespa vulgaris*; his attention was called to the nest on the ground-floor by the different colours of different parts thereof, some of which were found to be constructed of decayed wood, such as would be used by the common wasp, but not by *Vespa germanica*. Examination showed that the lower nest owed its construction to the united labours of both species of wasps, the different material employed by each determining the colour of the portion built by that species. Further observation proved that specimens of the common wasp, when returning homewards with a low flight, entered the nest of *V. germanica*, apparently by mistake, and deceived by the similarity of situation of the two nests.

Mr. F. Smith also exhibited the large larva and pupa of *Ripiphorus*, found in queen-cells of the common wasp, referred to at the previous Meeting.

Mr. W. F. Kirby read the following Notes on the Synonymy of certain British Butterflies, taken chiefly from Staudinger's Catalogue:—

“Genus *Pyrameis*, *Hub.*, *Doobl.* & *Hew.*—This genus, which can be immediately distinguished from *Vanessa* by the rounded and scalloped hind wings, contains a number of very closely-allied species from different parts of the world, and forms an exceedingly natural group.

“Genus *Melanagria*, *Meigen* (*Arge*, *Esp.*, *Hub.*, *Bd.*)—This genus contains the group of *Hipparchiæ* represented in England by *Melanagria Galathea*. The name *Arge* is inadmissible, because it is the specific name of one of the European species.

“*Erebia Epiphron*, *Knoch* (*Cassiope*, *Fab.*)—*Epiphron* has the priority by ten years.

“*Erebia Medea*, *W. V.* (*Blandina*, *Fab.*)—The name *Medea* should be retained, as it has a priority of seventeen years.

“*Polyommatus Medon*, *Hufnagel* (*Agestis*, *W. V.*)—*Medon* has a priority of ten years.

“*Polyommatus Icarus*, *Rottemburg* (*Alexis*, *W. V.*)—The name *Icarus* has a slight priority, but that of *Alexis* is extremely objectionable, as there is an East Indian species of Stoll's (*Ælianu*s of *Fabricius*) bearing that name.

“*Polyommatus Semiargus*, *Rottemburg* (*Acis*, *W. V.*)—*Rottemburg's* name has a slight priority over the other.

“*Pyrgus Malvæ*, *Linn.* (*Alveolus*, *Hub.*)—*Wallengren* and *Staudinger* agree in assigning *Linnæus's* name to this insect. *Illiger's* *P. Malvarum*, to which *Linnæus's* description is generally referred, does not appear to occur in North Europe at all.

“Genus *Cyclopides*, *Hub.* (*Steropes*, *Bd.*)—*Boisduval's* name is quite inadmissible, as it is the specific name of the type of his genus.”

I may remark that several of these names—as *Pyrameis*, *Epiphron*, *Medea*, &c.—have long been adopted in the collection under my care.—*E. N.*

At Home.—Friday evenings, February 3, 10 and 17, from 6 to 9 o'clock.—*E. Newman*; 7, *York Grove*, *Queen's Road*, *Peckham*.

ADVERTISEMENTS.

On these two pages will be inserted gratuitously all Advertisements of Duplicates and Desiderata, in the order in which they are received: excepting always that paid advertisements will take precedence of gratuitous ones.

From Rev. Joseph Greene, 4, Cary Parade, Torquay.

Duplicates. — 2 N. Senex (g.), 3 N. Dictæoides (b.), 1 N. Cucullina, 1 D. Coryli, 5 T. Subtusa (b.), 7 C. Xerampelina (b.), 5 E. Expallidata (b.), 3 E. Haworthiata (b.), 2 A. Pictaria (g.), 2 N. Pulveraria (b.).

Desiderata. — S. Testudo, G. Ilicifolia,* P. Nubeculosa,* A. Auricoma, A. Pyrophila, A. Agathina, D. Rubiginea,* T. Retusa, D. Oo, C. Pyralina, C. Absinthii, S. Turfosalis, S. Sticticalis, N. Viridata, E. Fuscantaria, A. Rubricata, E. Tæniata, E. Irriguata, E. Consignata, E. Helveticata. Marked thus * no specimen.

From George J. Hearder, Powick, near Worcester.

Duplicates. — Zygæna Loniceræ, Saturnia Carpini (bred), Pœcilocampa Populi (male), Petasia cassinea (male), Tæniocampa munda, Iodis vernaria (bred), Cidaria miata.

Desiderata. — My wants are very numerous, so I shall be glad to hear from any one who has insects to spare that are not common everywhere.

From Rev. E. Horton, Lower Wick, Worcester.

Duplicates. — L. Alsus, L. Ægon, P. Geryon (?), L. Mesomella, O. Pudibunda, E. Advenaria, A. Ornata, N. Pulveraria, M. Euphorbiata, A. Strigillaria, E. Subnotata, E. Absinthiata, E. Trisignata, E. Albipunctata, M. Galiata, P. Tersata, M. Tristata, T. Munda, E. Viminalis, E. Flammealis, T. Caudana, G. Nisana, E. Bimaculana, E. Nebritana, X. Pariana, X. Zœgana, P. Osteodactylus.

Desiderata. — C. Hyale, L. Sibylla, V. Polychloros, H. Comma, L. Helveola, L. Quadra, B. Castrensis, E. Erosaria, A. Circellata, E. Subumbrata, E. Helveticaria, E. Denotata,

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From R. W. Wright, Morland House, Hackney, London.

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Desiderata. — *A. Prunaria, C. Propugnata, P. Comitata, S. Certata, P. Lignata, M. Notata, M. Hastata, C. Flavicornis, B. Glandifera, A. Leporina, A. Anceps, T. Piniperda, T. Rubricosa, E. Fulvago, H. Serena, C. Vetusta, C. Exoleta, A. Luctuosa, E. Fuscula, T. Pastinum, P. Fimbrialis, R. Sanguinalis, E. Octomaculalis, H. Nymphæalis, H. Stagnalis, E. Verbascalis.*

To Entomologists. — *T. Last, Naturalist, Borough Road, Ipswich, has the following Insects for sale, well set and in fine condition, captured by himself, at the under-mentioned prices : — A. Adippe, 2d. ; L. Sibylla, 4d. ; S. Semele, 2d. ; Z. Trifolii, 3d. ; Z. Lonicerae, 3d. ; N. Senex, 4d. ; N. Cristulalis, 3d. ; L. Complana, 1s. ; A. Villica (bred), 4d. ; S. Mendica, 3d. ; T. Cratægi (male), 6d. ; P. Populi (bred), 6d. ; A. Promutata, 3d. ; A. Immutata, 1s. ; F. Conspicuata, 3d. ; E. Pumilata, 4d. ; C. Spartiata (male and female), 2d. ; C. Obliquaria, 4d. ; C. Vinula (bred), 4d. ; N. Camelina (bred), 3d. ; N. Dictæa, 6d. ; N. Dodonæa (male), 1s. 9d. ; C. Or, 6d. ; D. Orion, 1s. 3d. ; L. Pudorina, 6d. ; L. Straminea, 1s. 9d. ; L. Phragmitidis, 4d. ; N. Despecta, 4d. ; N. Fulva, 2d. ; D. Pinastri, 3d. ; A. Aquilina, 4d. ; N. Glareosa, 4d. ; N. Dahlii, 4d. ; X. Cerago and Silago, 2d. ; C. Xerampelina, 2s. ; A. Heribida, 3d. ; H. Dentina, 3d. ; B. Parthenias (male), 3d. ; B. Notha (male), 6d. ; A. Pyramidea, 2d. ; H. Cribralis (male), 1s. ; C. Phragmitellus (male), 4d. ; S. Ligrustri, 3d. ; C. Elpenor, 3d.*

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Revision of the Genus Telephorus, as far as regards the British Species. By G. R. CROTCH, Esq., M.A.

CONSIDERABLE attention has of late been paid to the European Telephoridæ, the species of Germany, France and Sweden having been carefully worked out by MM. Kiesenwetter, Mulsant and Thomson ; and finally, M. de Marseul has produced a general revision of all the European species. It is to these works that the reader is referred for more detailed descriptions, synonymy, &c., the aim having been, in the present paper, to give characters as concisely as possible, which should yet be sufficient to separate our indigenous species. Indications of those most likely to occur have been added. Our fauna will bear comparison with other countries, for we have now (two additions being made here—*T. assimilis*, *Pk.*, and *T. limbatus*, *Th.*) twenty-four species. In Sweden, M. Thomson has enumerated twenty-six ; of these four only do not occur in England ; but on the other hand two of our species (*T. translucidus*, *Kryn.*, and *T. abdominalis*, *F.*) are confined to Central Europe. It is to the Alps and Pyrenees that we must go for this genus ; but there is little probability that more of these species will be found here, though we have indeed a singular number of Pyrenean forms, as *Stenus Guynemeri*, *S. Kiesenwetteri* (since found at Paris), &c. Some diversity of opinion exists as to the genera admitted in this family : the distinctions which are founded on the tarsal claws appear to me merely of sectional importance. *Telephorus* may then be thus divided :—

Thorax emarginate at the base. Head constricted to form a neck.

Podabrus, *Fisch.*

Tarsal claws dentate at the base. Elytra blue. . . *Ancistronycha*, *Märk.*
External claws dentate in male.

Thorax quadrate or slightly transverse. . . . *Telephorus*, *Auct.*

Thorax elongate, sides straight. *Absidia*, *Muls.*

Tarsal claws bifid at the apex. *Rhagonycha*, *Esch.*

1. (*Podabrus*) *alpinus*, Pk. (1798). Mars. 10. 5—7 lines.—Testaceous; vertex, body beneath, and disk of the thorax black. Very variable. Thorax often immaculate and the elytra black, but the form of the thorax is too characteristic to admit of error. It is a species more abundant in the N. of Europe, being a mountain species in France and Germany. In Norway another species is found, *T. lapponicus*, much smaller and entirely black.

2. (*Ancistronycha*) *abdominalis*, F. (1798). Mars. 18. 5—7 lines.—Black; abdomen testaceous; elytra dark blue. Female—Thorax red. Varies, with the thorax and anterior legs more or less red. This is the common species of the mountains of Central Europe, but does not occur in Sweden, where it is replaced by the *violacea*, *Pk.*, which will very probably occur in Scotland. It is very like the present species, but has the elytra of a lighter greenish blue, and the legs generally red.

3. (*Telephorus*) *fuscus*, L. Mars. 23.—Black; thorax and margins of abdomen red, the former with a black spot on the anterior margin. This and the next species may be known from all others by their visibly punctured thorax. Less common than the following, but widely distributed throughout Europe.

4. *rusticus*, Fall. (1807). Mars. 24. 5—6 lines.—Very like the preceding, but at once known by its red femora and black disk of the thorax. Universally distributed.

5. *obscurus*, L. Mars. 28. 4—5 lines.—Black; thorax and abdomen testaceous at the sides. An insect of N. Europe. With us found in Scotland only, where it is not rare.

6. *nigricans*, Müll. (1764). Mars. 34. 4—5 lines.—Black; head in front, legs and thorax rufo-testaceous; posterior tibiae and knees black; thorax rarely unicolorous, but with a black disk varying in extent: when well-developed it appears to form the *discoideus*, *Steph.* (*nec Abr.* 1813): of this variety I have several examples from Scotland, one with a testaceous dash at the base of the elytra, but I can see no structural difference between them and the more southern forms. Two of my specimens were submitted to M. de Marseul, who also returned them as *T. nigricans*.

7. *pellucidus*, F. (1792). Mars. 35. 4½—5½ lines.—Black; forehead, thorax, legs and abdomen red; posterior

tibiæ fuscous. Common in N. Europe. This species seems to vary very little, and could only be confounded with *T. lividus*, *var. β.*; but the entirely black vertex and concolorous knees at once distinguish it.

8. *lividus*, L. Mars. 37. 5—6 lines. *Var. dispar*, *F.*—Testaceous; a spot on the vertex, knees and posterior tibiæ black. One of the most variable and abundant of our species. The elytra vary through a regular gradation to a deep black, which colour even invades the legs. In all its forms it is at once known by its singular orbiculate thorax, which has the margins broadly expanded, and by the black dash on the vertex.

9. *assimilis*, Pk. (1798). Mars. 41. 3—3½ lines.—Black; thorax rufo-testaceous; disk more or less black; elytra and tibiæ testaceous. This species appears to be nowhere common, though distributed over North and Central Europe. All the specimens I have seen from this country have been brought by Turner from Scotland, and have been generally referred to *Rhagonycha*, but they are true *Telephori*. It is, I believe, the sp. ? of Mr. Waterhouse's 'Catalogue,' and is certainly the species I registered with doubt as the *T. femoralis*, *Br.*, which resembles it in colouring, but is a true *Rhagonycha* by its claws, and has not, so far as I am aware, occurred in Britain as yet. *T. assimilis* is very variable in the coloration of the thorax and legs, but its black antennæ at once separate it from any species with which it might be confounded. It may be worth observing that the Scotch specimens are markedly smaller than the continental ones.

10. *figuratus*, Mannh. (1843). Mars. 45. 3—3½ lines.—Testaceous; vertex, an angular discoidal spot on the thorax and the base of the legs black. Also a very variable species, apparently rare in this country, though probably confounded with *liturata*, *Fall.* My own specimens, which are all I have yet seen, were taken at Cambridge, with the allied species. The legs, as in my specimens, are sometimes entirely pale. The best character for this species is its black scutellum, but its form is very different also. The head is narrowed behind conspicuously, and the thorax is very different from *T. rufa*.

11. *rufus*, L. Mars. 47. 4—4½ lines. *Var. liturata*, *Fall.*—Entirely rufo-testaceous. This form is, however, much the rarest in this country, though commonest abroad: here the

liturata, Fall., with two or three angular marks on the thorax, is much the most abundant. Both vary in the colour of the legs and elytra to a deep smoky colour. These variations are not, however, alluded to by any of the European authors. One characteristic mark is the black streak on the inner edge of the femora, which is rarely entirely absent.

12. *bicolor*, Panz. (1792). Mars. 48. $3-3\frac{1}{2}$ lines.—Rufo-testaceous, with the posterior knees black. This species is comparatively constant in its colouring; occasionally the knees are concolorous, but I have never seen varieties in the colour of the elytra, though Kiesenwetter has described them from the Pyrenees. It is by no means rare in temperate Europe, and is easily recognized. Its large subquadrate head is a very conspicuous character.

13. *thoracicus*, Ol. (1790). Mars. 52. $2\frac{1}{2}-3$ lines.—Testaceous; head at the base and elytra pitchy black. The yellow scutellum, legs and abdomen separate this at once from the following, with which it occurs, but more rarely. It is by no means uncommon in the fens of Norfolk and Cambridge.

14. *fulvicollis*, F. (1792). Mars. 51. $2\frac{1}{2}-3\frac{1}{2}$ lines. *Var. flavidabris*, Fall.—Black, with the thorax, apex of the abdomen, and legs red; elytra deeply granulated; tarsal claws with a strong tooth. This species is extremely variable, but the elytral sculpture will serve to characterize it throughout. It is almost universally divided into two species: Mr. Waterhouse first united them in his 'Catalogue,' a step which has been adopted, and I think with reason, by M. Thomson. The darker varieties of *T. flavidabris*, in which the black colour invades all the insect but the extreme angles of the thorax, are very rare and little known on the Continent. Almost any gradation may be found between this and the *fulvicollis*, and they are frequently found in company.

15. *paludosus*, Fall. (1807). Mars. 54. $2-2\frac{1}{2}$ lines.—Black; knees, and occasionally the extreme margin of the thorax, testaceous. The small size and uniformly black hue separate this from any species, except the *elongata*, Fall., which is a true Rhagonycha, and has longer, paler legs, and is a differently-formed and larger insect.

16. *lateralis*, L. Mars. 55. 2—3 lines. *Ovalis*, Germ.—Rufo-testaceous; vertex and elytra black, the latter with

the margin ochreous, densely clothed with a short gray pubescence. This very well-marked species is but little subject to variation, and is universal throughout Europe, becoming much more rare in the North.

17. *hæmorrhoidalis*, F. (1792). Mars. 62. $2\frac{1}{2}$ —3 lines. Clypeatus, Ill.—Pale ochraceous; disk of thorax and abdomen black; margins of the segments pale. Very common in spring on the whitethorn blossoms, and easily known by its pallid colour. The thorax is rarely immaculate.

(*Absidia*) *pilosus*, Pk.—This species was erroneously recorded as British by Stephens, and the continental authors generally refer the unicolor, *Curt.*, to this species. They are, however, very distinct, and the true pilosa is still to be found, and it is one of our most probable additions. The very curious form of the thorax will identify it at once. In colour it varies from a unicolorous testaceous to a more or less smoky tint.

18. (*Rhagonycha*) *translucidus*, Kryn. (1832). Mars. 76 (?). 3— $3\frac{1}{2}$ lines. Unicolor, *Curt.* nec *Fald.*—Entirely pale testaceous, pilose. Eyes very large and black in the male. Central Europe, not common. In England certainly also rare. There seem to be but few recent examples. This is the only species to which I can refer our insect, but there are certain discrepancies in the description which leave me very doubtful.

19. *fuscicornis*, Ol. (1790). Mars. 77. 3— $3\frac{1}{2}$ lines.—Ochreous; head, apex of the elytra, and abdomen black; thorax reddish testaceous. Not rare, and scattered widely over Europe. The discolored red thorax renders it easily recognizable.

20. *fulvus*, Scop. (1763). Mars. 79. 3 lines.—Bright reddish testaceous; elytra black at the apex; antennæ long and black, base pale. Very common everywhere at the end of summer.

21. *testaceus*, L. Mars. 87. $1\frac{1}{2}$ —2 lines.—Black; lateral margins of thorax, elytra, and feet ochreous. Common.

22. *limbatus*, Th. (1864). $1\frac{1}{2}$ —2 lines.—Black; thorax pale, with a discoidal black spot; elytra and legs pale; femora black. This is universally regarded as a variety of the *T. testacea*. I must confess the differences are mainly in coloration, but I have never seen any passage; and M.

Thomson also adduces a slight comparative difference in the sexual characters, which seems to be borne out. In any case the two are easily separated. The limbata is to me the commoner species. Variations in the colouring of the legs is not uncommon, some being nearly wholly black.

23. *pallidus*, F. (1787). Mars. 90. $2\frac{1}{2}$ —3 lines.—Black; elytra and legs pale yellowish; thorax small, narrowed in front. This very elegant species is universally abundant in the spring. The variety generally described, with the elytra darker at the apex, seems to be very rare in this country.

24. *elongatus*, Fall. (1807). Mars. 96. 2— $2\frac{1}{2}$ lines.—Black; base of the antennæ and of the tibiæ pale. Hitherto sent only from Scotland, where it is found with *T. paludosus*. It is equally common in Sweden, but rarer in Germany. The atra, L., for which this is often mistaken, differs by its smaller size and its pale tibiæ, and the transverse thorax. This species is generally considered a native of England, but I believe that no example exists on which a claim can be founded. That it will occur in Scotland cannot be doubted.

Silis ruficollis, F. (1792). Mars. 105. $2\frac{1}{2}$ —3 lines.—Black; thorax and abdomen red, the former unequal; the sides dentate in the male; antennæ subserrate. This easily-recognized species is rare, or at least local, in this country, and indeed appears to be nowhere common. In Norfolk I have seen it in some abundance, as also in all the fens about Cambridge: it generally appears in July. In the North of Germany, on the *Vaccinium*, an allied species is found,—*S. nitidula*, F.—which has the thorax black in the male and impunctate.

G. R. CROTCH.

University Library, Cambridge.

The Life-history of Lipara lucens, a Dipteron new to Britain.—In the month of May, 1858, I observed that *Arundo Phragmites* (common reed) was tenanted by some insect I had not seen before. On collecting the panicles and opening them I found full-fed larvæ and pupæ of some dipterous insect. In the upper joint or shoot of the seed was a curiously-formed cone or spiral-shaped mass: the leaves, and in fact all the top that should form the flower or panicle,

was converted into a spiral cone. The leaves and future blossoms were twisted round and round, one over the other, like rolls of cotton or cloth in miniature, the upper end coming to a sharp point; I have counted as many as forty-four folds: in the bottom of these cones the larva feeds, right into the stem, down as low as the next joint or septum. I took some of these cones home and put them in a jam-pot, and at the end of June there came out some small Diptera, which, being examined by Mr. Walker, proved to be *Chlorops tar-sata*. A day or two afterwards there emerged a dipterous fly of larger size, which Mr. Walker decides to be *Lipara lucens*, an insect entirely new to the British Fauna. I now became curious to account for the appearance of the smaller Diptera (*Chlorops*), of which up to this time I had no knowledge. Some two or three weeks after all had come out I opened several of the cones, and at last found out the pupa-cases of the little black dipterous fly: these were placed in about ten or twelve folds of the twisted cones, and the larva had completely eaten all the soft portion of the folded leaf, and had left the harder portions or silica of the leaf so perfect as to make a fine object for microscopical examination. In 1859 I again found the cones at Aldeby, just as they began to be formed, and again opened them, and found my old friend the *Lipara* larva in the middle of the cones, but none of the *Chlorops*. I watched the larva of the *Lipara*, and found they fed all through the winter, changing to a brownish pupa in May, with the head downwards, close to the hard joint of the reed; and at the end of June it came out. Now it is a mystery to me how it manages to leave its prison-house; the head being down, it must turn upwards by some means or other, and so make its way out of the folded dried cone without gnawing the reed, as there are no signs in the cones to show that they are empty till you cut them open with a knife. Now the green larva of *Nonagria Cannæ* burrows in the stem of *Typha*, leaving a carefully-eaten passage to admit of the imago escaping, and generally the external thin membrane is left as a cover to the hole, and not quite eaten through: the pupa is found head upwards. *Nonagria Typhæ* has a similar habit, except that the pupa is head downwards. How does the fly escape?—I believe by forcing its way up between the folded leaves, which, being elastic, close again

after its exit. In 1861 I again collected more cones. I will now go back to the wet season of 1860: on the reeds I found some reed-tops with eggs inserted in the top joints: about the middle of July they were hatched, the fifth and seventh days: the young larva began to burrow in the stem, and, after a day or two, had got out of sight: from the hole thus made a sort of juicy substance came, and settled on the stem, running down in some cases three or four inches; it dried of a whitish colour, and felt rather sticky. The young stem soon began to grow into a small cone, closing round the larva, which is white when young: the cones grow larger till September, when the larvæ are full-grown.—*W. Winter; Aldeburgh.*

Entomological Notes and Captures.

105. *Death of Dr. Baikie.*—We have not to deplore the loss of any of our Members during the past year, but you will all have heard with deep regret of the death of Dr. Baikie. He was well known to us as a most assiduous Entomologist; and it is understood that he has amassed extensive collections of insects, some of which are now at Haslar. After nine years of exploration in the interior of Africa, he died a few weeks ago at Sierra Leone, just as he was returning to this country.—*President's Address to Entomological Society of London, 1865.*

106. *Pill-box versus Laurel-box.*—I don't think there is any comparison between the pill-box and laurel-box for Lepidoptera, especially the Macros: the laurel-box must take precedence. But it is far otherwise with minute Diptera and Hymenoptera: the wings of these insects *will* become stiff in less than an hour after death, even in the laurel-box; and I find it absolutely necessary to bring them home alive, and then subject them to the influence of laurel-leaves. With regard to the size of the laurel-box, the first I had made was according to the measurements given by Mr. Greene, in his very useful work the 'Insect Hunter's Companion'; but I found this box too long, and taking up too much room in the pocket; I therefore had others made, about two inches less in depth, and these I found much more convenient, because it

is not desirable to put too many insects into one box, especially Lepidopterons. Mr. Greene is quite right about eggs being deposited after insects have been stupefied; I have repeatedly found this to be the case.—*Henry Reeks; Manor House, Thruxton, Hants, February 2, 1865.*

107. *Pill-box versus Laurel-box.*—Although hitherto an adherent to the pill-box plan, and still feeling that it has many advantages, I own that, in theory, laurel-box seems to me to have the best of the argument; yet there is one practical objection which I have not seen urged against it, *viz.*, its extreme cumbrousness, for its warmest adherents will allow that you cannot leave more than (at most) half-a-dozen moths, dead and dying, in one box at one time; hence it will follow that, when sugaring, you must be supplied with two or three of these laurel-boxes, besides a good-sized collecting-box, which together will, I contend, far exceed in weight and cumbrousness a bag containing some sixty to a hundred pill-boxes; for the "pill-boxer" has no need of a collecting-box at sugar. This, I think, is a serious consideration. Moreover, I do not see that the "laurel-boxer" is much less likely to decapitate or otherwise injure his moths in boxing them than the pill-boxer. Wherever a lid of limited size, with a sharp edge, has to fall, or be closed speedily, this danger will always await the nervous or inexpert. With respect to a remark of Mr. Todd's about the expense of chloroform, and the consequent desirability of avoiding waste, I think he and other adherents of chloroform for killing may be glad to have a description of a bottle for carrying about chloroform and administering it to moths in the net, pill-box or elsewhere, which I have used now for seven or eight years, and have proved to be most useful, and economical of that volatile fluid. It was invented by my friend Dr. Madden, late of Brighton, now in Australia, and executed by Charles Green, a gasfitter, in Western Road, Brighton. It is a smooth, cylindrical, brass bottle; external diameter three-fourths of an inch; height three-and-a-half inches; closed with a screw top, also of brass; lined with cork or India rubber: within this outer cap or top is a second screw-cap, tapering slightly upwards, and pierced with the very finest hole through which fluid can pass, the upper or outside aperture being almost invisible, whilst inside

it is somewhat larger: through this fine passage the chloroform comes out in a fine thread-like stream or jet (when the bottle is inverted or shaken), which can be directed to the head of an insect, through the smallest aperture, if necessary. It is a most convenient pocket companion, and a great safeguard against waste in the use of chloroform, in-doors or out. I imagine that any neat brass-worker could make one to order. Having never met with anything like it amongst other lepidopterists, and knowing it to be a private invention, I thought it worth while to send you this description, since even those who use chloroform only to stupify may be glad to hear of it. — [Rev.] *Percy Andrews; Lilleshall, Newport, Salop, February 4, 1865.*

108. *Killing Insects for the Cabinet.*—Years ago I advocated cyanide of potassium for killing all insects, or rather (if good and easy setting be an object) for stupifying them as immediately as by chloroform, after which they may be killed with oxalic acid if lepidopterous, &c., or by boiling if coleopterous. A small fragment wrapped in blotting-paper, and placed under a perforated-card false-bottom in a wide-mouthed bottle, soon renders the enclosed air more deadly than chloroform; whilst no expense or difficulty attends the use of this substance, which, for photographic purposes, may now be met with everywhere; also, when combined with old laurel-leaves, no stiffening will be found to ensue, even when insects are suffered to die, and remain all night in the bottle. My own plan with Lepidoptera is to pill-box them, and then, as shortly after as possible, to open the pill-box over the wide-mouthed bottle containing the cyanide, into which the moths almost immediately fall, when they may be taken out, stabbed with oxalic acid, and set or left as preferred. By this means females may be also left to deposit their eggs or not, without difficulty.—*W. D. Crotch; Uphill House, Weston-super-Mare.*

109. *Hepialus Humuli, var. thulensis.*—Four years ago I took a long series of the so-called Hepialus Humuli in Unst, in Shetland, which I still have. I tried at the time to create some little interest in these insects, from their marked peculiarities, and notice now, for the first time, that attention has been drawn to the matter. Such geographical varieties are of great interest, only I should be very sorry to see new

names affixed (as is done with regard to Atlantic species), when the original name marked *var.* would prevent undue multiplication of species, and indicate both a principle and a fact. The insect in question would thus stand as *H. Humuli, var. thulensis*.—*W. D. Crotch.*

110. *Scarcity of Bombyx neustria*.—In reply to Mr. Clifford's inquiry (Entom. 160), I beg to say I have also noticed the exceeding scarcity, during the last few years, of this once common insect. About five summers ago its beautiful larva literally swarmed in the neighbourhood of Clapton, feeding on the apple and other fruit trees in our gardens; but I have not seen a single specimen since. I am told, however, that a little further north it has been tolerably plentiful.—*William J. Argent; Lower Clapton, February 4, 1865.*

111. *Larva of Bombyx neustria: glutinous secretion of the Female Imago*.—In answer to Mr. Clifford (Entom. 160), may I state that the larva of *Bombyx neustria* was as abundant as ever during the last summer in this Island? When dissected the female imago shows a beautiful provision for securing the egg to the branch of the food-plant. In the lower part of the abdomen are two pear-shaped glands filled with liquid gum, and as the egg passes these it becomes covered with the cement, which, on exposure to the atmosphere, quickly hardens. It is insoluble in water, and so tenacious that pieces of card-board secured together by it cannot be separated without tearing.—*Henry Moncreaff; Southsea, February, 1865.*

112. *Preservation of Larvæ*.—I am glad to see the subject of larvæ-preservation occupying the attention of readers of the 'Entomologist.' The success which has attended the small experience I have had justifies me in stating a few particulars. The spirit I have used has been good spirits of wine, a little above proof. Besides other species, I have some *Bombyx neustria* larvæ preserved in this way four or five years ago, and the numerous bright lines of colour which this species exhibits are as fresh as ever. The larvæ are suspended from the cork of a small vial, by means of a ligature of fine cotton tied just above the anal segment. The spirit became at first slightly tinged with green, but the removal of the larvæ afterwards into pure spirit left all clear. It is important in preserving larvæ in spirits to seize the

most favourable time for the purpose, namely, immediately after the last ecdysis, and before the larva has again tasted food. The viscera are then nearly, if not quite, empty; and the minimum of discoloration of the spirit takes place while the skin is at its brightest. If it is found difficult or impossible to seize the exact time, the larva should be kept without food for a day or two previous to immersion. The spirits of wine used should be pure (not methylated), and not weakened below proof. It should be obtained of a respectable spirit merchant, and not a chemist. In some cases it is advisable to allow the larvæ to remain in a little spirits of wine, or gin, for two or three days, to "scour;" they may then be removed, partially dried on blotting-paper, and placed in clean spirit, in the vials in which they are to remain. The vials best adapted for the purpose are those used for the preservation of spiders, and can be obtained of various sizes. Besides spirits of wine, I have tried Sir Wm. Burnett's disinfecting fluid (chloride of zinc), but have not tested it sufficiently to be able to report favourably or otherwise; but I believe for some kinds it will be found to answer very well, as it doubtless would for preserving other objects of Natural History. It is cheaper and less volatile than spirits of wine. — *Joseph Merrin; Gloucester.*

113. *Preservation of Larvæ.* — I find that I attacked Mr. Blackburn's method of preserving larvæ rather too hastily, and, in justice to that gentleman, I am bound to add, unfairly. Since writing the note alluded to, I am indebted to Mr. Henry Doubleday for a beautiful and most life-like larva of *Bombyx Trifolii*, preserved by means of inflation over a "spirit-lamp" or "clear charcoal fire." I am glad to learn that our continental friends are progressing so well in this matter; in fact they seem to have left us somewhat behind. — *Henry Reeks; Manor House, Thruxtion, February 7.*

114. *Phlaeotrya rufipes*, Steph.—I have long felt that this insect did not accord with the description given by Mulsant and others, either in the details or in the mere coloration, the antennæ being said to be black, with the base rufous. It, however, was very near the *Vaudoueri*, *Muls.* (recorded by Mr. Westwood for Britain), and I had endeavoured to obtain specimens for comparison. M. Jacquelin-Duval, in his admirable 'Genres des Coleoptères d'Europe,' calls attention

to the fact, separates the rufipes, *Gyl.*, generically under the name of "Dolotarsus," and proposes the name "Stephensii" for our species, which, he states, differs from *P. Vaudoueri* in having the thorax more rugose, the foveæ at the base scarcely visible, and the elytra with elevated lines; the terminal joint of the maxillary palpi is also narrower. The French species appears to be extremely rare. The synonymy will therefore stand thus: — *Phlöetrya Stephensii*, *Duv.*, 1862. ; rufipes, *Steph.* nec *Gyl.* — *G. R. Crotch*; *University Library, Cambridge*.

115. *Latridius testaceus*, Steph.—This species is identical with *L. cordaticollis*, *Aubé* (Ann. Soc. Ent. Fr. 1852). The Stephensian name, being accompanied with a figure and good description, must of course stand.—*Id.*

116. *Ceuthorhynchus inornatus*, Waterh.—This species is identical with *C. Alliariae*, *Bris.* (Ann. S. Fr., 1860, 537), which name, being oldest, must be retained. This was pointed out to me by M. de Barneville himself, who had seen specimens from England.—*Id.*

117. *Monotomia 4-foveolata*, *Aubé*.—This species was originally introduced into our lists on specimens of a nearly-allied species, common near London, and which M. Aubé informs me is the *M. rufa*, *Redt.* Mr. Waterhouse had provisionally designated it "subquadrifoveolata." I find on inspection of Mr. Janson's collection that he has found the true 4-foveolata at Hainault Forest, and had so designated it in his boxes. It bears considerable resemblance to the *M. rufa*, but has the four foveæ much more distinct, the thorax nearly quadrate instead of elongate, and its margins are very plainly thickened; the elytra also are less pubescent.—*Id.*

118. *Occasional Abundance or Rarity of certain Species.*—It is, I think, an interesting subject for inquiry why many Lepidoptera are so abundant at times, and then disappear for years. For instance, in the year 1862, *Vanessa Cardui* was very plentiful in this district, but I have not taken a single specimen since. The larva of *Yponomeuta padella* was excessively abundant in 1863, stripping the foliage from the whole of the blackthorn-bushes in one part of this Island, but last year it did not once come under my notice.—*Henry Moncreaff; Southsea.*

119. *Lethiferous Spiders of Hierro*. — During my second

visit to the Canary Islands, which, in common with the former, was undertaken in the hopes of adding somewhat to our knowledge of the limits of the old continent of Atlantis, I, in company with my brother, made some little stay in the Island of Hierro. Here our coleopterous pursuits were soon checked by the solemn warnings we received as to the dangers we incurred from the bite of a certain huge, black, lethiferous spider, *Latrodectus malmignatus, var.* (as I am kindly informed by J. Blackwall, Esq.), which, lying beneath stones and rubbish, inflicted on the unwary a bite, which, besides causing great pain and tumefaction in the wounded limb, generally caused the death of the sufferer, unless relieved by timely and internal doses of human excrement: this was attested by the doctor, padre, and principal inhabitants of the place, who also found the creature for us, and stirred him up discreetly with a long stick. But so great was the contempt induced by familiarity that we could not be restrained from picking up the deadly monster, which, though tortured in the way presumed most provoking to a spider, persisted in collecting his legs, after the fashion of spiders in general, and lying inert in our hands. The magnates held a discussion, and determined that they had not got the right animal, and next day we were told that the real monster awaited us, and also that a live audience had collected. This announcement, coupled with the stories of misadventure with which we had been regaled, and the fact that we had no ammonia, nor much predilection for the ammoniacal wrecks of humanity suggested as an alternative, made us feel a little nervous. However, we faced the inevitable. Two cabbage-leaves were produced, tied with string, which we were recommended *not* to unfasten: we were assured that it was folly to tempt fate, and that it would end in our being imprisoned and suffering in the Island for at least a fortnight. We untied the bag, and another specimen of the same spider, only somewhat larger (covering, legs and all, about one square inch) emerged, and proved as innocuous as its predecessor. However, there can be little doubt that the *Latrodecti* can inflict a painful bite at least, though, like the *Tarantula*, this has been the subject of great exaggeration.—*W. D. Crotch; Uphill House, Weston-super-Mare.*

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12, *Bedford Row, London, W.C.*, February, 1865.

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A First Supplement to Mr. Doubleday's Synonymic List of British Lepidoptera is in course of publication, and will be printed uniformly with that work. When ready copies thereof will be stitched in the remaining copies of the "List," and in the current number of the 'Entomologist,' but will not be sold separately.

AT HOME.—Friday evenings, March 2, 9 and 16, from 6 to 9 o'clock.—*E. Newman; 7, York Grove, Queen's Road, Peckham.*

THE ENTOMOLOGIST.

No. 13.]

APRIL, MDCCCLXV.

[PRICE 6D.

Notes on the Genera Malthinus and Malthodes.

By G. R. CROTCH, Esq.

THESE two genera, so distinct from any others by their abbreviated elytra and the frequently bright yellow apex, are difficult, at first, to separate from each other. The form of the head and insertion of the antennæ will generally facilitate this. In *Malthodes* the antennæ are contiguous to the eyes, while in *Malthinus* they are remote, and the head is more contracted posteriorly. The species of *Malthinus* are few in number and very easily recognized.

Elytra long, unicolorous. *M. frontalis.*

Elytra with the apex sulphureous.

Punctate-striate. *M. fasciatus.*

Obsoletely punctured. . . . *M. flaveolus.*

M. fasciatus was originally divided by Kiesenwetter into two, but he has since united them. Thomson, on the other hand, has again separated them, his *M. facialis* being distinguished by having the face pale in the female, and the second joint of the antennæ not longer than the third. I have not seen any specimens answering this description. Two other species are known as European, both of which may occur here.

M. glabellus, *Kiesw.*, resembles *fasciatus*, but has the head and thorax smooth, and the elytra irregularly and obsoletely punctate-striate.

M. biguttulus, *Payk.*, is a large species, near *flaveolus*, from which it may be known by its dark legs, antennæ and thorax.

The species of *Malthodes* are much more numerous, thirteen being recorded for Sweden alone, and about thirty-six for Europe. The discrimination of species is attended with difficulty, as the only good distinctions are afforded by the

sexual characters of the male. The last segment of the abdomen is modified in the most extraordinary manner, recalling that of various Libellulæ and Phryganidæ. Specimens carefully mounted on card, as is the custom, are thus almost impossible to determine. That the species known in this country will be largely augmented, when a little attention has been paid to them, does not admit of doubt. The male characters are well figured by Kiesenwetter (Linn. Entom. 1852, vii. 265), but, from the difficulty of describing them, I have borrowed the arrangement of Thomson, based on the form of the thorax.

A. Thorax subquadrate, distinctly margined at the sides.

1. *M. biguttatus*, L., Thoms. (Sk. Col. vi. 198). *Marginata*, *Latr.*, *Ksw.* (*I. D.* 535).—One of our largest species. Black; thorax with the margins narrowly orange. Male with very long antennæ, and the head very broad.

2. *M. mysticus*, *Ksw.*—Like *biguttatus*, but with the elytra generally unicolorous, and the lateral margins of the thorax dark. The male characters are very decided. Several specimens in Mr. Wollaston's collection.

B. Thorax transverse, distinctly margined. Species small.

M. brevicollis, Pk., Thoms. (*nec Kiesw.*) *Nigellus*, *Ksw.*—1 line. A small entirely black species, with shining thorax. I have two examples apparently referable to this species, but unfortunately both are females, so that I cannot speak with certainty.

3. *M. atomus*, Thoms. *Brevicollis*, *Ksw.* (*nec Payk.*)—The smallest species of the genus, easily known by its gray elytra, the apices of which are faintly flavescent. Common, but very difficult to preserve.

C. Thorax with the sides immarginate; anterior angles elevated.

4. *M. fibulatus*, *Ksw.*—A unicolorous species, but distinct from *M. mysticus* by the antennæ being pale at the base. The male characters are also well marked. Several examples apparently, from Cambridge, in Mr. Wollaston's collection, and I have also seen a specimen from Dr. Power.

M. pellucidus, Kiesw.—Not unlike *M. marginatus*, but smaller. Antennæ with the base dark; anterior tibiæ pale. The male characters resemble those of *M. marginatus*. I have two or three females probably referable to this species, and have recently seen a male from Dr. Power which I think belongs to it; but without a good series of examples, so that the abdomen may be removed from one and examined carefully, it is very difficult to decide on some of these species.

5. *M. minimus*, L., Thoms. *Sanguinolentus*, Fall., Ksw.—The commonest of the group, and readily known by its nearly immaculate red thorax. The male characters here are hardly noticeable.

6. *M. dispar*, Germ.—The largest *Malthodes*, well distinguished by its legs and base of the antennæ being pale. The elytra are brilliantly yellow at the tips. The male characters here attain their maximum of development in our species. Not rare at Cambridge.

7. *M. flavoguttatus*, Ksw., Wat. Catal.—This species I have not seen as British: from the description it should be placed here, but is smaller than *M. dispar*, and has the base of the antennæ dark. In sexual characters it resembles *M. dispar*.

If this short sketch of the external characters leads any one to attempt determining the indigenous species of *Malthodes*, I shall be most happy to help them in any way, and feel convinced that they only require a careful study while alive, or rather recently killed, to greatly augment the number of our known species. Specimens taken *in copulâ* should be carefully preserved, as the determination of females presents considerable difficulties. In setting, care should be taken not to gum down the protruding wings over the abdomen; if this be avoided they may be pretty easily named. The unicolorous species are very probably confounded, in collections, with *Malthisus frontalis*: that species has, however, longer elytra, paler legs, and a very different thorax.

G. R. CROTCH.

University Library, Cambridge.

Life-history of Endromis versicolor.

By GEORGE GASCOYNE, Esq.

IF some of your observing contributors, though not necessarily scientific, each undertook to write the life-history of even one species, and especially of some of our more familiar insects, records not unworthy your pages might be produced, and yet be of sufficient general interest to secure the attention of both scientific and non-scientific readers.

I will endeavour to give one such history, taking the beautiful and now not uncommon moth called by school-boys the Kentish Glory, by the student *Endromis versicolor*. Perhaps such history ought properly to commence with the first stage of existence, namely, the egg; but it will be more convenient to make its acquaintance while in the pupa state. We shall then find it in a rather tough, almost transparent cocoon, among moss, dead leaves, or other *débris*, to which the cocoon is generally attached. The moss in the breeding-cage before us contains some forty or fifty cocoons. Let us suppose we have reached the end of March: the cage is sheltered from the cold winter, but has the benefit of the sun's rays, which are recognized by the pupæ, who soon commence working, head foremost, out of the cocoons, coming up vertically through the moss, and remain exposed for a week or ten days, more or less, as the weather may be warm or otherwise, until the imago comes forth. The males are the first to show themselves, both as pupæ and imagoes; the former, in what we may suppose to be delight at their approaching emancipation, will frequently leave the cocoon, and wriggle along the surface of the moss to some distance. April having arrived, the moss in the cage has become studded with those brown heads, looking very like the ends of cigars. A few warm, sunny days bring out a quantity of the males, and the females soon follow, always emerging before or about noon. The females of *E. versicolor* (at least in captivity) "call" at intervals, both during the day and evening: at times they will cease simultaneously, and the restless, impetuous males then immediately settle down, as though some mysterious influence had passed over them: on the "calling" being renewed, the males wake up, and resume their impetuous career until union is effected; and

as, one by one, they disappear beneath the shadow of the wing of the much larger female, the observer knows that he is in a fair way to secure fertilized eggs. But this is not always a matter of course ; for the gauze sides of a cage are not well adapted to the feet of this insect ; the sharply-curved, crescent-shaped claws constantly become entangled, and as one foot is liberated another gets fixed ; so that a little judicious assistance is often necessary to bring about that happy state of things to which I have alluded ; and those who are desirous of ensuring a continuation of the species would do well to place females, in the act of "calling," on upright stems about the thickness of a quill : the removal will momentarily interrupt the "calling," but, when the impulse is on, it will quickly be renewed ; and then, if the male be not too wild, he will, if placed below the female, pass up, and union will in most cases be effected ; but even if the male cannot be controlled, and takes wing (we are supposing ourselves to be in a suitable room, say a plant-house), he will soon return and join his mate. The duration of union I have known to vary from six to thirty hours, and in each case the eggs have proved fertile. Much depends, I think, on the time of day at which union takes place. I would here mention a circumstance of interest to the anatomical observer. I had been assisting a pair to mate ; the male, to say the least, was not "nimble" on his legs, and could not steer well ; however, the union was effected, and both settled down. I then left the plant-house in which the cages were placed, but, having occasion to return after an interval of ten minutes or so, I found they had separated : I cannot say precisely how many minutes they had remained together, certainly not exceeding ten.

The circumstance brought to my mind that some time previously I had received a letter from a reverend Entomologist, stating that he understood I had taken eggs from impregnated moths without their having passed the ovipositor, and that these eggs had hatched. The reverend gentleman had been misinformed ; I had frequently taken eggs from impregnated females, but they invariably proved unfruitful.

I determined to see what would be the result of this very brief union. I removed the female, and was careful to be present when she commenced depositing. I took away the

first eight or ten eggs, carefully noting in what order they passed: she laid only a further half-score. Of the first-laid batch five only hatched; these five were those which *first* passed the ovipositor; the remainder, and those subsequently laid, all proved unfruitful. I may mention, in connexion with this, that I have frequently observed, in a row of eggs, that a couple or so prove barren, turning a dirty white, instead of the rich, deep brown which all vivified eggs of this moth assume. The barren eggs generally lie side by side, having followed each other from the female: it would therefore appear that, for the moment, the fertilizing fluid had ceased, or failed to perform its function, but to have again quickly returned. I make no comment on these facts, but leave anatomical Entomologists to draw their own conclusions. When I first bred *E. versicolor* I was puzzled at the blundering attempts of the females to deposit their eggs; twisting up the abdomen, the ova fell as they passed the ovipositor, or became attached to the under side of the body, collecting in balls, or, if by chance any become attached to the material on which the moth rested, they accumulated in irregular masses; and as the same twisting of the body and turning under of the ovipositor took place with each female, I became satisfied the promptings of instinct produced the action, and that she required to be in a normal state to perform her work properly. I therefore placed her on the main stem of a young birch-plant, growing in a flower-pot, the foliage of which was intended as food for the larvæ: she at once commenced to ascend, and, passing along one of the thin laterals, the before awkward moth now seemed quite at home: with perfect freedom of movement she clasped the branch, adjusted herself beneath it, and, curling up the abdomen, passed it up one side of the twig, bringing it forward until it approached the hinder legs; then, passing the ovipositor over to the upper surface, deposited the first egg, close to the hind legs and across the twig, a little towards the side from which it was delivered; then, slightly elongating the body, another was laid, alongside the first; then a third, and so on, until nine or ten had been deposited in the most regular manner, and having the appearance of a row of miniature vegetable marrows laid side by side. The abdomen having now been elongated to its full extent, she withdrew it, and, passing it to the opposite side of the twig, bringing over the

ovipositor as before, placed an egg exactly end to end with the first one laid, and so on throughout the second row. A third row is sometimes laid on the first, forming a second tier; and I have batches of the shells where even third and fourth tiers have been raised. The female now takes wing, alighting on a neighbouring twig; and the operation is repeated, with intervals of rest, until she has laid about half her store, the remainder being retained for a subsequent evening. The exact moment for laying the eggs appears not to be under the control of the female: when the impulse is on, she is most impatient to adjust herself, and, if she has not completely succeeded when the proper moment arrives for the passage of the egg, she appears to have no power to retain it, and it becomes attached to any part that the ovipositor may happen to touch at the moment of emission. I have frequently counted the eggs taken from the unimpregnated females of *E. versicolor* when preparing the insects for the cabinet; they generally number about 160, but those emitted seldom exceed 120, often less, the female (at least in captivity) becoming too exhausted to complete. Strong, healthy females will lay their eggs with the greatest precision and nicety; the small and weaker ones are generally great bunglers throughout, and deposit them very irregularly.

The eggs, when first laid, are of a bright yellow, and about half the length of a grain of wheat; they soon assume a rich brown, much the colour of the twigs on which they are deposited: in warm, sunny weather the change of colour will be effected in twenty-four hours, but when cold and dull it occupies several days. In this state they remain about three weeks or a month, the time varying with the state of the atmosphere. Let us watch the progress of hatching. Our eggs have now become dark flesh-colour, and we can see the movements of the young larva within the pellucid shell. See, there is a small hole at the end of each egg; these increase in size, and if we examine them with a pocket lens we see the projecting jaws of the young larva nibbling away at the edge of the openings, until the head appears, and the body quickly follows: half an hour will see the majority clear. Observe how they wander over the shells, gently feeling each other as they come in contact: they are seeking a "trail," and, as soon as they are satisfied none can be found,

they will commence one, and start their first journey in life : one has already left the batch, and is making its way up the twig, and evidently leaves behind something which serves as a guide to those still wandering over the batch of eggs, for first one, then another, follow ; and now there is a string of them marching in single file : how strictly they follow the leader ! No ! one appears to have lost the trail, and is passing up a side branch, but, discovering his error, " tries back," and has again fallen into the line of march. All are now assembling near the tip of the twig to repose, ere they commence feeding. When at rest they adhere by the claspers, the anterior portion of the body being erect : they closely resemble, in colour, shape and size, those little black stumps so common on the twigs of the birch. But while our attention has been taken up with this company, the remaining portion of the larvæ have gone in another direction : having failed to " strike " the original trail, one started on his own account, each subsequent individual following the trail he happened to fall in with. Thus the produce of this batch of eggs has become divided into two companies ; it is quite likely, however, that some days hence, when removing in search of fresh food, they will each descend their respective twigs, passing up the main stem, and fall into the same trail, becoming united, probably to be again divided at a subsequent migration. I would for a moment draw your attention to the shells which the larvæ have just quitted : while tenanted they were of a dark, rich, fleshy brown, much resembling the twigs on which they were laid ; but empty they are very conspicuous, and might be mistaken for opals or pearls, which appearance they will retain : a well-formed set is a desirable addition to a cabinet, and, with the imago and pupa-shell, form an interesting and instructive historic group. Upwards of a week has now elapsed, and the larvæ have ceased to eat ; the body has thickened, until the skin has become full and stretched ; the head has slipped out of its old cover, which is empty and transparent, the head itself having passed back into the next segment of the skin, which finally bursts down the back, and is slipped off, segment after segment, until it is gathered into a little heap behind, when the larva draws out the last segment, and then reposes, after having accomplished the moult, and passed one of the

most critical periods of its life. This first moult singles out the weak or diseased individuals who die under, or rather without accomplishing, the operation. The larvæ are now become of a dull green-colour, and, as they sit in groups, have a remarkable resemblance to bunches of the birch-catkins : it requires a practised eye and close examination to distinguish one from the other. At times, when resting in small groups, or even singly, in a reflexed posture, the rigid prolegs extend, and give an outline more or less resembling the midrib and serrated edges of the birch-leaf ; and they evidently trust to these attitudes for concealment. They still continue to feed in groups, marching in company from branch to branch as the food becomes exhausted : these groups appear to feed systematically, the larvæ going out two or three at a time to the neighbouring leaves, and returning to "fall in," others advancing to take their place. The first moult occurs about ten days after hatching, and about ten days further the second moult takes place, after which the larvæ, becoming too large to derive security from their resemblance to the catkins, disperse : their attitude and colour daily assume more resemblance to the leaf : they now grow rapidly, feed incessantly, and become very handsome. In this as well as in the pupa state the male and female may be distinguished by their contour and size, the female larva, like the imago, being far more robust and sluggish than the male. When full-fed the larvæ for a day or two assume a rosy tint, and then pass down into the moss, leaves, or such other débris as happens to be at hand, among which they spin their cocoons and assume the pupa state : this change takes place, in confinement, the latter end of June or early in July.

GEORGE GASCOYNE.

Newark.

Entomological Notes and Captures.

120. *A Genus of Coleoptera new to Britain (Anisoxya fuscula).*—Anisoxya is a genus established by Mulsant, in 1856 (Barbip. 45), to include *Dircea tenuis*, *Rosenh.* This species was afterwards identified with *Serropalpus fusculus*, *Ill.* (1798), and appears to be widely distributed over the

Continent. It has all the appearance of an *Abdera*, but may be distinguished by its long spurs, and from any genus in this group by their unequal development, those on the intermediate tibiæ being the longest. The only species, *A. fuscula*, is of a unicolorous brown, with pale pubescence. Two specimens were recently taken by Mr. Brewer, one of which passed into the hands of Mr. Janson, and the other is in the British Museum. These specimens were named *Hallomenus fuscus*, *Gyll.*, from a comparison with two specimens of Dr. Power's, which are, I believe, the only authority for the insect: these two he has kindly allowed me to examine; both are unquestionably identical with my own, and, as I conceive, with the *Anisoxya fuscula*, *Ill.* — *G. R. Crotch; University Library, Cambridge.*

121. *Mildness of the Temperature at Torquay.* — The following two or three facts offer a curious illustration of the extremely mild temperature of this place. Through the kindness of friends last summer I received eggs of the following species: — *Petasia cassinea*, *Ptilophora plumigera*, and *Xanthia aurago*. On casually examining the box containing the first-named, *the last week in January*, I was amazed to find two larvæ crawling about. Never dreaming of their hatching so soon, I had, up to this time, very foolishly kept them in a warm room. They, in company with the others, were then immediately transferred to the coldest place I could find. But it was no use: hatch they would. I need scarcely say that, at this early period of the year, there was not the slightest chance of procuring any elm, which, when at large, I have found to be their favourite food. Being, however, extremely anxious to rear the insect, I tried various things. First, I offered them hazel-flowers: no use. Then I bruised the buds; but they would not touch them. A little later on I gave them flowers of wych-elm, and then lilac; but with the like result. During this time fourteen out of eighteen perished. At length I hit upon the following plan: — I procured catkins of sallow, then about the size of a pea, and split them in two lengthwise. I had at last discovered the right thing. The remaining four took kindly to this food, and one of them is now (March 20th) nearly half full-fed! I am still obliged to feed them on the catkins, as there are no leaves yet. It is rather troublesome work, as they

have to be renewed at least once a day. This is caused by the necessity of splitting open the catkins, which in consequence quickly dry up. The larvæ will not touch them when whole. During this time the eggs of *P. plumigera* and *X. aurago*, in spite of my efforts to retard them, continued to hatch. I am sorry to say these all died, as it was utterly impossible to procure the food—maple and beech—on which they exclusively feed. A still more remarkable instance, perhaps, of the mildness of the temperature in the early part of the present year, is to be found in the fact that on the 25th of *February* a very fine specimen of *Smerinthus Tiliæ*, and one of *Noctua plecta*, emerged from the pupa. Two more of the former have since come out, and also two *Endromis versicolor*. These pupæ, I should say, were kept in a warm room. I may add, in conclusion, that it is anything but warm here just now, and that vegetation is very backward.—

[Rev.] *J. Greene*; 4, *Cary Parade, Torquay, March 20.*

122. *Note on the Larva of Liparis Salicis.*—*Liparis Salicis* was very abundant last year, and in the autumn, when the young larvæ emerged, I saw thousands of them suspended by a silken thread from the aspen and poplar trees, apparently seeking a favourable spot in which to hybernate. It is said that the ova of this species are not hatched until the spring, but in this district they are invariably out in about twenty days. The young larvæ lay up for the winter when about a quarter of an inch long, in the crevices of the bark, among leaves, &c., and commence feeding in early spring, when they are so small as to appear but just out of the egg.—*Henry Moncreaff; Southsea.*

123. *Poisonous Property of the Larva of Liparis auriflua.*—The beautiful, but extremely poisonous, larva of *Liparis auriflua* was very scarce last summer in this Island, but abundant the year before, when I collected about two hundred for the purpose of investigation. All went on well until their first moult, when the hair soon became detached from the old skin and reduced to a fine powder, which was put in motion by the least disturbance of the air in the breeding-cage, and attached itself to all the moist, uncovered parts of the body, causing violent irritation and swellings on the neck, face and hands. After all had spun up I attempted to remove the cocoons, when my face and hands soon assumed a

similar appearance ; and so great was the irritation produced that I was seriously indisposed for some days. In December last, while cleaning out the breeding-cage, I found that the dust in it had lost none of its virulent properties ; and after seeking relief in many applications, I found at last that a bruised dock-leaf, well rubbed on the parts affected, wrought a speedy cure.—*Henry Moncreaff.*

124. *How to Rear the Larvæ of Bombyx Rubi.* — I venture, as a subscriber to the 'Entomologist,' to ask your assistance in my endeavour to rear some larvæ of *Bombyx Rubi* (fox), taken by a friend of mine in October last ; they were found feeding upon bramble, sallow and clover. My friend writes :— "I hardly know how to advise for their best management, as this time of the year is the most critical of their lives in captivity. I have never succeeded in bringing them safely through." He adds, "All the specimens I have tried in two previous winters have gone off about this time (November) and the following month. Should you meet with any one who has got them safely through to the imago state, I would feel much obliged for his method of rearing them." Independently of the above, I have no knowledge whatever of the habits of this larva, and know not whether it changes into the pupa state below ground, or whether it spins a cocoon. At present I have them in a box with mould in it (into which they penetrate), and, above this, moss and bramble ; and they seem to come out in the night, for I have found them more lively then than at any other time. — *Richard H. W. Leach ; Oak Hill, Hampstead, February 27.*

[Obtain a tea-chest, or some large useless wooden box without a lid ; fill the bottom with healthy turf cut from a common ; put the larvæ, with their food, on the turf, and cover the box with wire gauze : thus prepared leave the whole in your garden, exposed to wind and rain, and the moths will emerge in due time. The larva spins a large, long, loose, smoke-coloured cocoon among the heath. I have written the life-history of this species, but have not found space to publish it.—*Edward Newman.*]

125. *Eggs of Trombidium holosericeum.* — I notice with peculiar interest the announced solution (Entom. 143) of the problem regarding the nature of those white specks which occur on stones, like a very minute lichen or fungus. On the

25th of August, last year, I had a convincing proof of the truth of this. Walking on the footway between Ratcliff and Seagrave, in Leicestershire, I saw a heap of broken pieces of granite, spotted all round with whitish specks, of which I was very curious to know the nature. The weather was very dry and hot, and the sun setting. I took my pocket lens, and, looking at one of those fragmentary stones, was struck at seeing, in each nook and crevice of the same, a cluster of very fine dark purple insects, which I supposed to be something like *Erythraeus parietum*, *Latr.* : on scratching some of these with the point of a knife they emitted a very dark purple humour, of the same kind as that of the Acaridea ; so that I needed no further proof of their truly animal nature.

—P. J. Gagliardi ; *Market-Weighton, January 5, 1865.*

126. *Influence of Atmospheric Changes upon Insect Life.*

— I am sure that many of my brethren of the net have gone out expecting great things, but have come back sadly disappointed. Now this could not be the case if they would take notice of the state of the weather a little before they start. I am perfectly aware that the slightest change will prevent moths from moving (of course I am alluding to night-flying insects). Here is a case in point : at the end of last September (the wind being west), having to get some Galium for larva-food, I went out in the dusk of the evening : on my return I observed some small *Noctua* flying over a dyke that was crowded with herbage ; I knew the moth was *Nonagria despecta*, and, wanting a few of them, I filled what boxes I had with me, to the number of sixteen ; some of the specimens were a good deal worn, so I resolved to go on the next night for a few more. At about the same time of the evening, after looking about some time, I observed one rise, but it soon went down again among the herbage : this was the only one I saw that night : the wind had shifted about two points to the north. On the next night not one *N. despecta* was to be seen : the wind had shifted a little : I was about leaving, when I observed several small moths flying among some flags on the same spot ; I took about twenty of them : on getting them home, to my surprise I found they were *Nudaria Senex* : this was new to the Kentish coast, so I went on the next evening for a few more, the wind having gone back to the west : *N. despecta* was flying most merrily, but

not one *N. Senex* : I went the nine following evenings, but not one more *N. Senex* could I get. Many an evening have I gone out with my sugar-can, brush, lanthorn, and a bagful of chip-boxes, the weather being warm and still ; but not a moth came to the sugar. I have met with this sort of luck so often that I resolved, if possible, to find out what was a good night to start upon : I have found that the night must be dark, with slight rain and little wind : such a night is sure to be good. Now take a warm, still, dry night : you will see *Noctuæ* flying about as if they were mad, but none come to the sugar : this is what I call a "breeding" night. For about half an hour the *Noctuæ* will thus fly ; after that there is not one on the move. On these nights search the herbage and trees, and you will find lots of *Noctuæ* and others *in cop.* Last autumn, when out on the sand-hills, the wind being south and still, the *Noctuæ* were flying in swarms for a short time ; then not one is to be seen on the wing : on looking among the tall grass I am sure I could have taken fifty pairs of *Xylophasia sublustris*, with many others. I have been for three seasons after *Acidalia emutaria*, an insect that will only fly on a warm, still night ; but I have never taken one : it is there, but will not move. *Summary.*—Wind south or south-west, dark, light rain, slight breeze, good ; but if one point to east or north, no good. Northwest, if any wind, no good ; if calm, a little may be done. South or west, still and warm : these are breeding nights ; sugar little or no good. North, with a light wind, or east, little good ; with a strong wind, no good ; stay at home. No time is good just before rain : often have I been out with every prospect of a good night, but nothing has come : I have told my friends there would be rain before morning, and it has invariably come. Sultry weather just before a thunder storm is good, but not after. In general, entomologise after rain, and not before it. By attending to these rules the Entomologist will not be far out. Although I have been speaking of coast-collecting, these rules will hold equally good with inland-collecting.—*H. J. Harding* ; 171, *Lower Street, Deal, Kent.*

127. *Luperina cespitis* at *Deal*.—I have taken this insect on the sand-hills at Deal. It is, I believe, new to the Kentish coast.—*Id.*

128. *Colymbetes fuscus infested by a Fungus*.—I have for some time past kept in an aquarium, among other things, a specimen of *Colymbetes fuscus*. For the last few weeks I have noticed the growth of what appears to me to be a fungus. It somewhat resembles paste, and is scattered about on various parts of the beetle, but the thickest growth is on either side of the thorax where it joins the head. I shall be glad to know if others have observed this; for though I have heard of such a disease affecting fish, I have never noticed it with regard to Coleoptera.—*W. J. Rowe*; 13, *St. Mary's Road, Peckhem, January 28, 1865.*

Entomological Society.

January 2, 1865.—Mr. Bond exhibited a series of that remarkable race of *Hepialus Humuli*, which has been noticed at p. 162 as received from Shetland. Also a series of *Ephesia*; and of *Depressaria olerella*, a species new to Britain, and lately captured by Mr. C. G. Barrett near Haslemere.

Mr. Wallace exhibited two hundred species of Longicorns captured by Mr. Lamb at Penang, in the province of Wellesley, nearly the whole of them new to Science.

The Rev. Hamlet Clark exhibited a collection of Lepidoptera, Hymenoptera and Orthoptera, from the Banks of the Nile. Mr. Pickard-Cambridge, who formed the collection, remarked that insect life was not abundant in Egypt: the specimens of Micro-Lepidoptera, now exhibited were all he saw: he also called attention to the seed-pod of a *Cassia* from which a species of *Lycæna* had emerged, but which still remained unopened.

The Secretary read a letter from Mr. Roland Trimen, dated Cape Town, November 11, 1864, and stating that Mr. Westwood's *Charaxes Argynnides*, lately described as new, from the Zambesi, was identical with his (Mr. Trimen's) *Nymphalis Jahlusa* (*Rhop. Af. Auct. Pt. I. p. 177*): no true *Argynnis* has been taken in South-Eastern Africa, the only fritillary known to inhabit the regions being *Atella Phalanta*, which has no silver ornamentation.

The Secretary mentioned that the Rev. J. Collins, of Shepley Parsonage, near Huddersfield, had recently captured fifty

or sixty specimens of *Dasypolia Templi* in quarries among stones: Mr. Collins inclined to the opinion that the larvæ in some instances fed on the common ling or heath, or small sorrel. [Has Mr. Collins seen the life-history of this species as worked out by Mr. Jeffrey, of Scarboro'? it leaves no room to speculate on the food-plant.]

Mr. Smith read a long and most interesting communication from Mr. Stone on wasps and their parasites, particularly alluding to some diseases to which wasps appear to be subject.

January 23, 1865. — Anniversary Meeting. — An abstract of the Treasurer's Account, was read, showing a balance in favour of the Society of £71 11s. 11d.

An election for Officers took place, when Mr. Pascoe was re-elected President; Mr. Stevens, Treasurer; and Messrs. Dunning and Shepherd, Secretaries: and the following gentlemen, in addition, were appointed members of Council: — Rev. Hamlet Clark, Messrs. M'Lachlan, Moore, Pascoe, Saunders, A. F. Sheppard, E. Sheppard, Smith, Stainton and Weir.

The President then read an Address on the state of the Society and the general progress of Entomology, which was ordered to be printed.

February 6, 1865. — The President appointed Messrs. Stainton, Saunders and Smith, Vice-Presidents; and announced that through the liberality of Mr. Saunders the Council was enabled to offer two prizes, of five guineas each, to the authors of Essays of sufficient merit connected with Economic Entomology.

Mr. Brewer exhibited *Corticaria truncatella* of Mannerheim and *Ceuthorhynchus biguttatus*, both taken at Worthing, at the roots of sea-side plants. Mr. Bond exhibited *Bombus Smerinthus* of White, taken in the Shetland Islands. Major Cox sent for exhibition portions of a wooden dog-kennel infested with *Ixodes plumbens*, and a *Cimex* apparently new to Science: the Secretary read a letter from this distinguished economic Entomologist explanatory of the habits of the *Ixodes*.

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MAY, MDCCCLXV.

[PRICE 6D.

Revision of the Genus Necrophorus, as far as regards the British Species. By J. A. POWER, M.D., F.R.G.S.

ON a recent visit to Cambridge I found my friend Mr. Crotch busily occupied in collating the different groups of insects contained in his own extensive collection, and those of Messrs. Janson and Wollaston, which he has recently acquired, constituting no doubt by far the most extensive accumulation of British Coleoptera which exists. He was then occupied with the Silphidæ, and called my attention to two species of banded Necrophorus, which were not long since separated from the others by MM. Duval and Thomson. He had detected one of them in his own collection, and requested me to try if I could find it and the other in mine. I have succeeded in doing so, and have the pleasure of sending you a few notes upon the subject.

In the genus *Necrophorus* we have hitherto recognized seven species, two of them being black, and five of them banded with red. They all agree in presenting a peculiar emargination of the clypeus, which is fitted with a bright orange-coloured marking, varying in different species and also in the sexes. The posterior trochanters also exhibit sexual characters, and differ with the species. Their external terminations are in some cases simple, in others armed with two short spines, and in others one of these spines becomes elongated, or converted into a large recurved hook.

These trochanteric characters seem to be constant and important in other insects of this tribe, as in some of the Cholevas, where they afford satisfactory means of diagnosis between some cognate species.

By means of the orange-coloured emargination, and the variation of the trochanters, the two new species may be separated from the other banded ones; easily enough in the

case of the males, for in them the trochanters exhibit differences; whilst in the females they appear to be always simple or shortly spinose. The diagnosis of the female is therefore not so satisfactory.

The genus *Necrophorus* will seem then to stand as follows:—

Sec. 1. ELYTRA BLACK.

1. *N. germanicus*, Linn.—Readily distinguished by its large size, the black club of the antennæ, the thorax being more convex, and the reflected margin of the elytra fulvous. The smaller specimens are about the same size as the larger ones of *N. humator*. This species is rare: I have myself taken but one specimen, which I found in a rotten duck's egg in the garden of the Rev. W. E. Scudamore, at Ditchingham, in Norfolk, some ten years ago.

2. *N. humator*, Fab.—A common species, with black elytra and an orange-coloured club. I have one specimen, apparently not immature, which has the reflected border somewhat fulvous.

Sec. 2. ELYTRA ORANGE, WITH BLACK FASCIÆ.

3. *N. Vespollo*, Linn.—Diagnosed from all the others by the curved posterior tibiæ. Common.

4. *N. Mortuorum*, Fab.—Diagnosed from all the others by the black club of the antennæ. Common in rotten Fungi, &c.

5. *N. vestigator*, Herschel.—Diagnosed by having straight tibiæ, and the thorax much dilated in front and clothed densely with orange-coloured hairs. It seems to be rare: Mr. F. Smith took a large quantity at Lowestoft some years since.

There remain two species—

6. *N. ruspator*, Er. Kaf. i. 225 (1837), and

7. *N. interruptus*, Stev. Mandib. iii. 18, pl. XVI. 2 (1830); *fossor*, Er. Kaf. i. 224 (1837).

And it is from these respectively that we have to separate—

8. *N. microcephalus*, Thoms. Sk. Col. iv. 9 (1862), and

9. *N. gallicus*, Duval, Glas. ii. 139 (1860).

N. interruptus and its ally may always be known by the

pale pubescence at the margins of the abdominal segments ; whereas in *N. ruspator* and its ally the pubescence is black. Again, in the two former, the anterior black fascia of the elytra extends well down upon the reflexed margin, whereas in *N. ruspator* and its ally it only extends up to it. Moreover, in *N. interruptus* and *N. gallicus* the anterior orange band does not extend quite up to the sutural margin, whilst in *N. ruspator* and *N. microcephalus* it does.

Now to diagnose *N. ruspator* and *N. microcephalus*. In *N. ruspator* the posterior trochanters of the male terminate in two spines, one of which is prolonged into a *large reflexed hook* ; in the female they have short spines only : in *N. microcephalus* they have short spines only, in both sexes. Again, in *N. ruspator* the orange emargination of the clypeus is, in the male, large and quadrangular, extending nearly to the top ; in the female it is small and triangular, with the apex rounded, extending about half-way up : whereas in *N. microcephalus*, in the male, it is in the form of a triangle with the apex truncate, extending half-way up (nearly as in female *ruspator*) ; in the female it is merely a narrow strip a little elevated in the middle. Another difference is, that in the head of *N. microcephalus* there is a smaller mass of vertex behind the eyes ; remarkable in the male, but manifest enough in the female also. Lastly, *N. microcephalus* is, as far as I have seen, a much smaller insect. It appears to be rare : I have met with only seven specimens ; two, a male and female, are in Mr. Crotch's collection ; there is one male in the Stephensian collection at the British Museum ; I have in my own a male and female, one taken by myself at Weybridge, and the other by Dr. Ernest Adams, I think in Suffolk ; and there are a male and female in Mr. Waterhouse's collection. I have taken *N. ruspator* at Shirley, Mickleham, Weybridge and Sydenham, but not very abundantly.

It remains to distinguish *N. gallicus* from *N. interruptus*. The diagnosis of the males is easy enough, but that of the females appears to be very obscure ; I have indeed only seen one specimen which I can suppose to be the female of this insect. In *N. interruptus* the posterior trochanters terminate in simple spines in both sexes ; whereas in the male of *N. gallicus* the external spine becomes a large reflexed hook, as in *N. ruspator*. Again, in *N. interruptus* the emargination of

the clypeus is quadrangular, extending nearly to the top, and perhaps a little contracted above; in the female it is in the form of a truncate triangle, extending nearly half-way up. In the male of *N. gallicus* it is also quadrangular, but in the few specimens I have seen it is not so much contracted above. In the single specimen which I have met with of what I suppose to be the female of this insect, it is of nearly the same form as in *N. interruptus*, but does not extend so high up. Again, the thorax of *N. gallicus* is somewhat wider in front; the tarsi of the male are more strongly dilated, and, in the same sex more especially, the portion of the vertex which lies behind the eye is much more considerable; the insect, too, appears to be generally larger and stouter than *N. interruptus*. It will be observed that these latter differences are the reverse of those which exist between *N. ruspator* and *N. microcephalus*. The only specimens I have been able to recognize are—one male in my own collection, singularly enough taken at Ditchingham, in Norfolk, out of the same egg from which I got my specimen of *N. germanicus*; one male in Mr. Newman's collection; and in the Stephensian collection at the British Museum one male, and what I suppose to be a female of this species, but these are both of smaller size. *N. interruptus* is by no means a common species: I have taken it at Darenth, Wimbledon, the Holt Forest, &c., &c.

I have examined a very considerable number of banded *Necrophori* from various quarters, with the object of determining these species, but, as I have shown, have not been able to find many examples of them. I have no doubt, however, that they will now be detected, mixed up with the others, in various collections.

I think that from the preceding observations it will be manifest that we do possess the two species separated by MM. Thomson and Duval; but whether they are good ones or not is an open question. I am inclined to think that *N. microcephalus* will hold good, for I have seen very many specimens of *N. ruspator*, and find nothing decidedly intermediate. *N. interruptus* seems to be comparatively rare, and I have not had anything like the same means of comparison, and therefore cannot speak with the same confidence as to *N. gallicus*.

My friend Mr. Rye suggests that the two so-called species are merely minor and major developments of *N. ruspator* and *N. interruptus* respectively, and I should not be at all astonished if this theory turns out correct; for we undoubtedly find it to hold with respect to some cognate insects, especially *Anisotoma calcarata*, which exhibits three well-marked forms of the male, varying in size, curvature of the tibiæ, and spinous development of the femora.

I hope that what I have stated will call attention to these insects, and enable us to obtain material for the farther elucidation of the subject, perhaps in the next 'Annual.'

JOHN A. POWER.

March 27, 1865.

Description of the Larva of Lobophora polycommata. — The egg is laid in April or May, on *Lonicera periclymenum* (honeysuckle) or *Fraxinus excelsior* (ash), on both of which the larva feeds in confinement: it is full-fed about the middle of June, and then rests in a nearly straight position, the head prone, indeed bent completely under, and the mouth closely pressed against the legs, which are crowded together, and directed forwards as if purposely to meet the head. Head decidedly smaller and narrower than either of the following segments; 2nd segment slightly dilated at its anterior margin, thus forming a kind of shallow cup into which the head is partially received: body obese, of uniform substance and cylindrical, with the exception of a dilated lateral skinfold; its surface both above and below most delicately shagreened: 13th segment terminating in two pointed processes directed backwards. Colour of the head dull but pale green; dorsal surface of the body dull green, with a narrow medio-dorsal stripe slightly darker; this is sometimes so faint as to escape observation; indeed it may possibly arise at all times from the presence of food in the alimentary canal; ventral surface with a broad median stripe of glaucous-green, having within it a narrow medio-ventral stripe of a still paler and almost white-green; but this, like the medio-dorsal stripe, is very obscurely defined; the dilated skinfold, exactly intermediate between the dorsal and ventral surface, is whitish yellow, and forms a conspicuous lateral stripe

continued from the head to the extremity of the anal flap ; the series of spiracles is just above the lateral stripe, and of the same pale colour. *Note.* — This larva is so like that of *Lobophora lobulata*, described at page 8700 of the 'Zoologist,' that it is difficult to express the difference in words, but through the unceasing kindness of Mr. Doubleday I have been enabled to place side by side specimens of both species reared from the egg, and a careful comparison shows that the larva of *L. polycommata* is the more robust of the two. It undergoes pupation just below the surface of the earth, and remains in the pupa state throughout the winter.

—*Edward Newman.*

*Description of the Larva of *Hybernia leucophæaria*.* — The eggs are laid by the apterous female on the trunks and branches of *Quercus Robur* (oak), in March : the young larvæ are hatched towards the end of April or beginning of May, and as soon as the leaves expand the young larvæ fasten them loosely together, forming a little domicile for concealment from the prying eyes of birds, which at this season are constantly on the look-out for larvæ with which to feed their young. The larvæ are full-grown in June, and then rest in various positions, but I have rarely observed them in that rigid stick-like attitude so common with those Geometric larvæ which feed constantly exposed : when disturbed they emerge from their domicile, and hang suspended by a thread. Head narrower than the body, porrected, not notched, but exhibiting in a very marked manner the triangular space on the crown ; body obese, transversely wrinkled and verrucose, having also a manifest lateral skinfold. Colour infinitely varied, indeed so much so that it seems desirable to describe five of the more common types of ornamentation. No. 1. Head and 2nd segment apple-green, concolorous : body yellow-green, with four paler dorsal stripes, which extend from the 3rd to the 12th segment, both inclusive ; of these four the interior pair are the narrowest ; equidistant from each exterior stripe and the lateral skinfold is another stripe about equal in width to, but less distinct than, the two mediadorsal stripes ; the ventral surface is yellow-green ; the claspers apple-green ; the legs pale sickly green. No. 2 has the head pale green, the cheeks delicately reticulated with black ; the body also pale green, the 2nd segment having

two dark smoke-coloured blotches ; each of the following segments has a transverse black band, extending on either side to the spiracles. No. 3 has the ground colour sickly yellow-green, the 2nd segment having two almost square dark smoke-coloured blotches ; the 3rd segment has a cloud of the same colour, and the following segments, namely, the 4th to the 12th, both inclusive, have each a transverse dorsal band almost black : this band has the anterior margin nearly straight, but the posterior margin produced into three points ; these transverse bands are intersected by two pale dorsal stripes : the claspers have a blotch of the same dark colour on the outside. No. 4 has the black bands as dark as in No. 3, but the interspaces suffused with smoke-colour instead of green ; the ventral surface has two stripes of smoke-colour. No 5 is intensely black and unicolorous, except that there are two narrow pale green dorsal stripes interrupted at the interstices of the segments. My specimens, abundantly supplied by Mr. Doubleday, appeared to be full-fed about the 1st of June, and changed to pupæ on the surface of the earth.—*Edward Newman.*

Entomological Notes and Captures.

129. *The Stylopidae Neuropterous.*—The Strepsiptera, or rather the Stylopidae, after being settled comfortably, apparently, among the Coleoptera, have again had the question of their location raised by Dr. Gerstaecker. He places them with the Neuroptera, principally for the following reasons :—1, the rudimentary buccal organs ; 2, the elongated free anterior and middle coxæ ; 3, the radiate venation of the posterior wings ; 4, the short and annular prothorax ; and 5, the branchiform respiratory organs in the larvæ. But the existence of the last is more than doubtful. Dr. Schaum answers these reasons in a paper in Wiegman's 'Archives,' just as before he answered Von Siebold's objections. The reasons advanced for considering them as Coleoptera are :—1, the coriaceous veinless anterior wings ; 2, the striking resemblance between their early (hexapod) larvæ and those of *Meloë* ; and 3, the perfect metamorphosis. It may be remarked that these hexapod larvæ (in the second stage they

are apodal) have a singular resemblance to the Thysanura, which are by some also considered to be Neuropterous, and it is worthy of notice that the larva of *Xenos Rossii* (I am not aware if it is the case with others) is saltatorial, just as the Thysanura are saltatorial. — *President's Address to the Entomological Society of London, 1865.*

130. *Dimorphism in the Genus Cynips.* — With regard to dimorphism, an important fact has been recorded by Mr. Walsh ('Proceedings of the Entomological Society of Philadelphia,' March, 1864, p. 443). He finds that part of the galls of *Quercus tinctoria* produce males and females of *Cynips spongifica* in June; those that remain until October and November, and also in the following spring, produce *Cynips aciculata*, but females only. Mr. Walsh appears to prove that the latter, although widely different in many respects, is only a dimorphous form of *Cynips spongifica*. I have already expressed an opinion that in some cases dimorphism may perhaps be dependent on second broods ('Proceedings' of this Society, April 7, 1862, p. 72), and, if attention was paid to this subject, probably other instances might be found. — *Id.*

131. *Insects on the Underside of Stones.* — I would suggest to our collectors the necessity of following up, in this country, the examination of the under surface of large stones deeply imbedded in the earth. My excellent friend, M. Raymond, of Frejus, first led the way, I believe, to this kind of exploration, in conjunction with other French naturalists, and particularly of M. F. de Saulcy, and the result has been the discovery of a considerable and always increasing number of new forms, such as *Anillus*, *Microtyphlus*, *Geodytes*, *Troglorhynchus* and others; so that there is every reason to believe that this hypogæal fauna will exceed, if it does not already do so, that of the grottoes. Hitherto no hypogæal species has been detected in this country, but there is surely no reason why some of them may not be found. — *Id.*

132. *Entomological Collectors Abroad.* — I have only to say a few words, in conclusion, relative to our collectors abroad. Mr. Bouchard, who has gone out to the southern shores of the Gulf of Mexico, has, we hear, arrived at Santa Martha, and he is much pleased with the appearance (entomologically) of the country. Mr. Bartlett, the naturalist who

accompanied Mr. Tristram in his recent expedition to the East, has sailed for Parà, whence he proposes to ascend the Amazon, making his head-quarters about 200 miles above the highest point attained by Mr. Bates. Mr. Read is, I understand, about to proceed to Bahia, following up the new line of railroad through the virgin forests of that rich district. And, lastly, it is in contemplation to send out a collector to the new settlement in Northern Australia, a region hitherto quite unexplored. I have to-day received a letter from M. Gaston Allard, Moulevrie, near Angers (Maine et Loire), in which he informs me that he intends in the autumn to proceed to Senegal for the purpose of collecting insects and plants. He has already travelled in Algeria, and is very anxious to meet with a companion for the journey.—*President's Address to Entomological Society of London, 1865.*

133. *Food of the Larva of Caradrina cubicularis.*—During the past summer some field-peas grown in this neighbourhood were observed by the owner and his men to be very much blighted, and constantly visited by flocks of starlings, especially just before they were harvested. When the peas were taken into the barn, on the 12th of December, to be thrashed, an immense number of larvæ of *Caradrina cubicularis*, from half to full-grown, were dislodged from the haulm. Having previously only known this species to infest wheat-stacks, and seeing these larvæ to be rather greener than usual, I resolved to rear some of them, in the hope of obtaining varieties of the moths; and accordingly secured eighty specimens, most of which are now nearly full-grown, and inhabit cocoons formed of their food and fragments of the peas and earth spun together.—*Wm. Buckler, January 4, 1865, in 'Entomologist's Monthly Magazine,' p. 214.*

134. *Capture of Agrophila sulphuralis, with Notice of its Habits.*—While searching in Suffolk for *Acidalia rubricata*, I met with two specimens of the above-named local species. The habit of this pretty little *Noctua* appears, in this locality, to be much the same as in its Cambridgeshire haunts, where I have had the pleasure of meeting with it. It starts up from the ground-herbage on one's approach, and then, having flown sharply for a short distance, soon settles again. It is, however, far more active during bright and warm sunshine. Occasionally I have seen it settled on the

flowers of knapweed (*Centaurea nigra*) and clover, the wings being neatly roofed at an acute angle, as is the case with *Hydrelia uncana*. In hunting for this little beauty, a switch, for the purpose of brushing the herbage, is of great advantage ; and in capturing it the net should be quickly placed over it as soon as one can get within reach. — *F. Bond, in Ent. Mo. Mag.* p. 214.

135. *Economy of Laverna decorella*.—Mr. Barrett, already so well known as a discoverer, has detected (and recorded in the February number of the 'Entomologist's Monthly Magazine') the economy of *Laverna decorella*. This Micro-Lepidopteron forms swellings or galls on the upright stems of three species of willow-herb—*Epilobium montanum*, *E. palustre* and *E. parviflorum* ; the larva eats the pith, the stems, when discovered, being quite hollow. In *E. montanum* the galls are generally about the size of a large pea, and frequently occupy several joints of the same stem, but do not otherwise distort the plant or much impede its growth : in *E. palustre* they lessen the distance between the joints, and convert the summit into a confused mass of leaves ; while a number of lateral branches, originating below the gall and ascending by its side, surmount the original or natural summit. In *E. parviflorum* the attacked joints form a robust mass of half-a-dozen confluent galls, on which the silken pubescence of the plant is strongly developed. Pupæ only were found.

136. *Hyphidrus variegatus in Britain*.—I possess a specimen of this insect, taken some years ago by a young man of the name of Kay, who resided at Bury, near Manchester. It is believed that he took it in Delamere Forest, where there are natural lakes, but of this I cannot feel quite certain ; the fact is, however, doubtless that he did take it in Lancashire or Cheshire.—*E. Brown, in Ent. Mo. Mag.* p. 185.

137. *Aquatic Habit of a Hymenopteron*.—As I was entomologizing in Sutton Park, three or four years ago, in the latter part of June, I saw a Hymenopterous insect deliberately crawling along the stones under the water at the bottom of a shallow stream that runs there. I thought that I had killed it by pressing it with my fingers against the stones, but it only feigned death, and on my taking it out it flew away. It looked much like *Pompilus plumbeus*, and at

the time was referred by me to that group ; there can be, however, little doubt that it was an ichneumon fly on the look-out for caddis-worms. — *R. C. R. Jordan, in Ent. Mo. Mag.* p. 186.

[Doubtless *Agriotypus armatus*, described and figured in Curtis's 'British Entomology.' I have often obtained this insect by sweeping the grass on the banks of the Herefordshire streams, where the Phryganidæ abound.—*E. Newman.*]

138. *Oxypoda glabriventris*. — Mr. Rye (in the February number of the 'Entomologist's Monthly Magazine') gives minute and detailed characters, both in Latin and English, to this species, which he believes new to Science : it was found, in company with *Homæusa acuminata*, in the runs of *Formica fuliginosa*, at the root of an old beech tree in Headly Lane, near Mickleham, by S. Power.

139. *Synonymy of Cicada anglica*. — Dr. Hagen informs us (in the 'Entomologist's Monthly Magazine' for February) that this is identical with the *Cicada montana* of Scopoli, and totally different from the specimens of *Cicada hæmatodes* of Linneus, which name it has occasionally received ; these are from Barbary : the *Cicada hæmatodes* of Scopoli is, again, a different species, but, being prior to the Linnean name, must stand. Dr. Hagen concludes that "the hæmatodes of Linneus will have to be re-named." What will naturalists say to this ?

140. *The way in which the Females of the Genus Leuctra carry their Eggs*. — In the autumn of 1862, when entomologizing along the banks of one of the impetuous streams of South Devon, my attention was attracted by one of the small Perlidæ, which, when flying, seemed to have the abdomen of a pale yellowish colour. On catching this I found that it was a female of *Leuctra geniculata* of Stephens, and that the apparent paleness of the abdomen was owing to a mass of eggs which the insect carried. In *Leuctra* the last abdominal segment is curved upwards, and the mass, composed of many hundreds of small eggs, extended from the up-curved last segment to near the base of the posterior wings, along all the dorsal surface of the abdomen. I have since repeatedly captured females of this species, carrying their eggs in a similar manner, and have remarked a like habit in the females of a smaller species, *L. fusciventris* of Stephens. I

have in my collection females with the mass still attached *in situ*.—*R. M'Lachlan, in Ent. Mo. Mag.* p. 216.

[I have so often observed the habit of retaining the eggs by some glutinous secretion after extrusion, that I incline to think it characteristic of the family.—*Edward Newman.*]

141. *New British Coleoptera*.—In the 'Entomologist's Monthly Magazine' for March, Dr. Power mentions four additions to our list of British Coleoptera—1, *Agriotes pilosus* of Fabricius, an Elater having the colour and pubescence of *Agriotes sputator*; 2, *Lebia haemorrhoidalis*, taken in a wood near Devizes; 3, *Oxythyrea stictica*, taken on rose-flowers on the Lancashire coast, in June, 1822; and 4, *Brachinus glabratus* of Stephens: these are added by Mr. Sidebotham, but concerning the habitat of the first and the name of the last there seems to be some little doubt. It will doubtless be recollected that the *B. glabratus* of Stephens was sunk as a variety of *B. crepitans* by Dawson, in his 'Geodephaga Britannica'; and Mr. Rye appears to think Dr. Power's insect an example of *B. explodens* of Duftschmidt. Will Mr. Crotch kindly express an opinion on this matter?

142. *Hybernation of Cidaria miata*.—The Rev. E. Horton, of Worcester, and Mr. Barrett, of Haslemere, have noticed as new the fact of *Cidaria miata* hibernating in the imago state: this is invariably the case.—*Edward Newman.*

143. *Rhagonycha translucidus* at Darenth.—I took a specimen of this beetle—named with doubt in the revision of the genus (Entom. 171)—in Darenth Wood on the 21st of last June: it agrees very well with the description given in the paper alluded to, to which I was at once able to refer it.—*George Stockley*; 7, Hope Terrace, Bromley, March 23.

144. *Borboropora Saulcyi*, a new British *Brachelytron*.—In the 'Entomologist's Monthly Magazine' for March, Dr. Power records the occurrence of this insect at Mickleham, where he took one specimen by sweeping, on the 13th of July, 1862. The genus *Borboropora* may be distinguished from any other in the group by its very large subquadrate head, and the peculiar formation of the oral organs, the mandibles being very slender and produced, and the right one having a large strong tooth at the base; the labial palpi are sub acuminate at the apex. *B. Saulcyi* is thus described by Kraatz:—“Depressed, nigro-piceous, shining, with a gray

pubescence: elytra and legs piceous: head broad, transversely subquadrate; forehead deeply channelled: thorax narrower than the head and elytra, deeply foveolate at the base and obsoletely channelled: abdomen very finely punctured. Length $1\frac{1}{2}$ line."

145. *Notes on certain Alterations of Nomenclature in the Genus Malachius.* — The smaller species of *Malachius* have been recently formed into a genus by MM. Motschulsky and Thomson; M. Kiesenwetter also has accepted it; the principal character being that of the produced second joint of the tarsi in the male, and the name *Axinotarsus*, *Motsch.*, in allusion to this, has been employed to distinguish them. Our English species are *Malachius pulicarius*, *F.*, and *ruficollis*, *Msh.* This latter is, however, the true *ruficollis*, *Oliv.*, 1790, which name must therefore be employed for it. *M. ruficollis*, *Fab.*, *Er.*, is an *Anthocomus*, and should be placed after *A. fasciatus*, under the next oldest name, *terminatus*, *Menet.* (1837). The very broadly red apex to the elytra and the simple tarsi will always distinguish this species. It may be worth notice that a species exists (*marginalis*, *Lap.*) very near our *pulicarius*, *Fab.*, distinguished easily by its testaceous anterior tibiæ. — *G. R. Crotch; University Library, Cambridge.*

146. *Notes on the Genus Telmatophilus, with Description of a New British Species.* — Considerable diversity of opinion has existed as to the true position of this genus, but nearly all authors now concur in assigning it to the *Cryptophagidæ*, from which indeed it differs principally by the singularly formed tarsi. The species are few in number and of a uniform leaden gray colour: they are found in marshes and damp ground, on flowers, and belong principally to N. Europe.

T. Sparganii, *Ahr.*, may be recognized at once by its piceous hue and by the pale markings on the elytra. It appears to be an insect of Central Europe, where it is not rare, but is not found in Sweden, and is very rare with us: the only recent examples I have seen were taken by Mr. Brewer at Horning Fen.

T. Caricis, *Oliv.* The largest species of the genus. Its quadrate thorax and long gray or fulvous pubescence at once characterize it; the male also has the posterior tibiæ dilated, as well as the abdominal fovea common to all the species.

T. brevicollis, *Aubé*. Now first introduced into our lists, on two specimens taken by myself at Weston-super-Mare. It resembles *T. Caricis*, but is smaller, and has the thorax much broader than long. Specimens I received from M. Anbé himself agree exactly with my own; but M. Kiesenwetter describes it as of the size of *T. Typhæ*, which I do not find to be the case. It is found in France and Germany, and is probably generally overlooked. The femora are frequently infuscate, and in many cases the whole insect is piceous.

T. Typhæ, *Fall.* Closely resembling *T. Caricis*, but much smaller, with the thorax transverse and more sparingly punctured; the tibiæ also are alike in both sexes. Specimens occasionally occur with the femora infuscate. Generally distributed.

T. Schönherri, *Gyll.* This species has been confounded with the preceding, from which it differs by the form of the thorax. In this species it has the sides rounded in front, and is distinctly contracted behind. The whole insect is, moreover, much narrower, and the femora and antennæ are nearly black. I have found it in various localities. MM. Thomson (Sk. Col. v. 244) and Kiesenwetter (Ins. Deut. iv. 672) do not agree well in their descriptions, either in the form of the thorax or in the coloration. My specimens agree best with the species as described by M. Kiesenwetter.—*G. R. Crotch.*

147. *Notices of some Species new to Britain; Corrections, &c.*—*Eunectes sticticus*, *L.* Introduced by me on a specimen in Mr. Wollaston's collection, which he purchased with other insects from a collection formed in N. Devon, probably by Dr. Cocks, of Barnstaple: the specimen has every appearance of being genuine, being pinned with an ordinary pin, &c. The known distribution of the insect is such as to render its occurrence here very probable. It could not be confounded with any species, but most resembles a very pale *Acilius*.

Cryptophagus serratus, *Gyl.* This fine species, referred by Erichson to *Paramecosoma*, is rightly placed in *Cryptophagus* by Thomson (Sk. Col. v.) The only specimen I have seen was brought by Turner from Scotland, and from him passed into the hands of Mr. Janson. It is utterly distinct from any

of the species in this somewhat perplexing genus by its uniform dark piceous colour, strong punctuation, and the equally and plainly serrate edges of the thorax. It is about the size of *C. Scanicus*, and should be found on sallow-blossoms in the spring.

Sitones lineellus. This species must be expunged from our lists : it was reintroduced by me on receiving a MS. list of *Sitones* from M. Allard, in which it was given as distinct ; and knowing that we had several specimens existing under that name, I imagined they were probably the true species : this, however, appears not to be the case.

S. gressorius. This species is mentioned as being one likely to occur in this country by Mr. Rye (Ent. Mo. Mag. 229). I have a specimen placed with *Tanymecus palliatus* in an old duplicate box of insects taken by myself in the South of England. There can, I think, be no doubt of its genuineness. Its differential characters have been sufficiently pointed out by Mr. Rye in the paper referred to.—*G. R. Crotch.*

148. *Death of Mr. MacLeay*.—William Sharp MacLeay, F.L.S., the learned author of the 'Horæ Entomologicæ,' died at Sydney on the 26th of January last. He was formerly Judge in the Mixed Commission Court at Havannah, and for a short time member of the Executive Council of New South Wales. Mr. MacLeay united with the most profound knowledge of Entomology, the most lively imagination ; so that while his facts are always reliable and deeply instructive, his speculations must be received with great caution.—*Edward Newman.*

Entomological Society.

March 6, 1865.—The President announced that, as an inducement to the study of Economic Entomology, the Council had determined to offer Two Prizes, of the value of Five Guineas each, to be awarded to the Authors of Essays or Memoirs, of sufficient merit, and drawn up from personal observation, on the anatomy, economy, or habits of any insect or group of insects which is in any way especially serviceable or obnoxious to mankind. The Essays should be illustrated by figures of the insects in their different states, and (if the

species be noxious) must show the results of actual experiments made for the prevention of their attacks or the destruction of the insects themselves. The Essays must be sent to the Secretary, at No. 12, Bedford Row, with fictitious signatures or mottoes, on or before the 31st December, 1865, when they will be referred to a Committee to decide upon their merits; each must be accompanied by a sealed letter indorsed with the fictitious signature or motto adopted by its author, and inclosing the name and address of the writer.

Mr. Bond exhibited specimens of a gall found on a willow tree near Cambridge; the tree was fifty feet high, and almost every twig appeared to possess its gall, which took the form of a premature terminal development of leaves in whorls, so as to resemble a flower-head. He had observed the galls only the day before the Meeting; the leafy excrescences were then dry and withered, and he was unable to state what was their colour when fresh.

Mr. Saunders remarked upon the similarity between this and the Swiss gall which he had exhibited at the Meeting of November, 1864 (Zool. 9377), in which, however, the leaf-like processes were not spread out, but were adpressed to the stem.

Mr. Bond also exhibited varieties of *Colias Edusa* and *Va-nessa Urticæ*, both captured in Norfolk or Suffolk; each was remarkable from having the wings, particularly the hind wings, conspicuously blotched or suffused with dark patches.

Mr. T. W. Wood exhibited a variety of the male of *Apatura Iris*, captured in Kent; it was remarkable for the absence of the usual white markings on both the upper and under sides of the wings.

The President read a note on generic names having nearly the same sound, in which he expressed a decided opinion that such names need not be changed.

Mr. M'Lachlan read "Trichoptera Britannica; a Monograph of the British Species of Caddis-flies." In this paper, the result of five years' study of the group, the author gives detailed descriptions of 124 species, arranged in 43 genera, and full accounts of the habits of the same, so far as they are known to the present time.

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Notes on the Melyridæ. By G. R. CROTCH, Esq.

IN continuation of some remarks made by me in a former number (Entom. 167) on the Telephoridæ, I have now drawn up brief distinguishing characters for the Melyridæ known to inhabit this country. This group has been for some time in a state of considerable confusion, no special work, except Erichson's on *Malachius*, having appeared since the older authors. As a natural consequence it will be necessary to make some changes in the received nomenclature. I have here followed the steps of the latest authority, H. v. Kiesenwetter, who, in the fourth volume of the 'Insekten Deutschlands,' has given a complete epitome of all the species likely to concern us. The Melyridæ divide into very natural groups,—*Malachiades* and *Dasytides*,—distinguished by the presence of lateral vesicles in the former. The *Malachiades* are represented by three genera in this country, but three others—*Apalochrus*, *Charopus* and *Ebæus*—may be expected to occur; the latter, indeed, is represented by two species in the old collections, but no recent examples seem to have occurred.

Apalochrus femoralis, Er.— $1\frac{3}{4}$ line. Black; elytra green; antennæ, tibiæ and tarsi testaceous. Apparently rather of eastern distribution, but being found rarely in Sweden and Germany, and more commonly in Hungary and S. Russia. It may be known from all others by the apparently 10-jointed antennæ.

MALACHIUS, *Fabr.*

§ I. Elytra simple in both sexes.

1. *M. aeneus*, L.—3— $3\frac{1}{2}$ lines. Green; head yellow in front: thorax at the anterior angles and elytra red, the latter with a long, green, common, triangular patch, which very rarely extends so as to leave the elytra only margined with

red. Common. The long recurved hook on the third joint of the antennæ in the male will distinguish this from two other allied species, having nearly the same colouring, which both occur in Germany.

2. *M. bipustulatus*, L.— $2\frac{3}{4}$ lines. Green; mouth yellow; thorax with the anterior angles and the apex of the elytra red. Common. The singular appendages to the basal joints of the male antennæ leave this species quite unmistakable.

3. *M. viridis*, F.—2 lines. Like the preceding, but the elytra are very narrowly margined with red at the apex, and the thorax is concolorous; occasionally the elytra are also concolorous. Not rare, and scattered over all N. Europe.

§ II. Elytra in the male with the apex produced, and with stiltiform appendages.

4. *M. marginellus*, Ol.— $2\frac{1}{2}$ lines. Green; margins of the thorax and apex of the elytra red. A coast species, belonging to Central Europe, and not found in Sweden.

5. *M. spinosus*, Er.— $2\frac{1}{4}$ lines. Green; elytra red at the apex; antennæ in the male simple. I believe a specimen exists in Mr. Waterhouse's collection. It is very common in S. Europe, and extends some distance into Germany.

Numerous southern species exist of this genus, whose number yearly augments, and it is not impossible that Cornwall or Ireland may yet produce some novelties.

AXINOTARSUS, *Motsch.*:

A genus founded by Motschulsky to include the small *Malachii*, in which the male anterior tarsi have the second joint produced beneath. It has been since adopted by Kiesenwetter and Thomson.

1. *A. pulicarius*, Fab.— $1\frac{2}{3}$ line. Dark green; sides of the thorax and apex of the elytra red; antennæ and anterior tarsi testaceous. Not rare. *A. marginalis*, *Lap.*, which is found in Germany, closely resembles this, but has the anterior tibiæ also pale.

2. *A. ruficollis*, Ol. 1790, Ksw. *Rubricollis*, *Msh.*—Dark green; thorax and apex of elytra red. Tolerably common. This is the true *ruficollis*, *Ol.*, as his figure at once shows. Fabricius, as usual, applied the name to another species.

ANTHOCOMUS, *Er.*

Resembles the preceding, from which the simple tarsi distinguish it.

1. *A. sanguinolentus*, Fab.—2 lines. Dark green; sides of thorax and the elytra entirely scarlet-red. Local and occurring in damp fens.

2. *A. equestris*, Fab.— $1\frac{1}{2}$ line. Green; elytra red, with a black fascia posteriorly. Exists in the old collections, but I know of no recent examples. It is supposed to have occurred at Bristol, and is not unlikely to be re-found, being very common in Germany, though not occurring in Sweden.

3. *A. fasciatus*, L.— $1\frac{2}{3}$ line. Black; head and thorax green; elytra with an abbreviated fascia, and the apex red. Common throughout Europe.

4. *A. terminatus*, Mén., Ksw. *Ruficollis*, Fab. (nec Oliv.)— $1\frac{1}{2}$ line. Green; thorax and elytra at the apex broadly red; antennæ at the base, tibiæ and tarsi testaceous. Fem. apterous. Apparently local. Norfolk and Cambridge. Rare on the Continent, occurring in Germany and Greece; but a recently-described species, the *lateplagiatus*, Fairm., from S. France, is probably identical with it. The name *ruficollis* being preoccupied, the next oldest has been adopted.

ATTALUS, *Er.*

A genus very near *Anthocomus* in some of its characters, and hard to define.

The only species (*A. Cardiacæ*, L.), found in Northern Europe, is black, with red tips to the elytra, and has the antennæ pectinate in the male: it is found, but rarely, throughout Sweden. The southern species are very numerous, especially in Spain and the Canary Islands.

EBÆUS, *Er.*

A genus containing several small species, considerably dilated behind. The second joint of the tarsus is set obliquely in the male.

1. *E. pedicularius*, L.— $1\frac{1}{2}$ — $1\frac{2}{3}$ line. Black; antennæ at the base and legs testaceous; posterior femora black; elytra with the apex red. Specimens exist in the old collections, but nothing certain seems to be known about them. It

occurs generally in temperate Europe. *E. flavigornis* differs in having the elytra entirely black, and occurs in company with it.

2. *E. thoracicus*, *Ol.*— $1\frac{1}{3}$ line. Black; thorax red; elytra greenish blue. Also in Leach's collection. Found in Central Europe, but not occurring in Sweden.

HYPEBÆUS, *Ksw.*

A genus separated from Ebæus, on account of the simple tarsi.

One species—*H. flavigipes*—is found in Sweden and Germany: it has the base of the antennæ and the front legs yellow. The elytra in the male have the apex broadly pallid.

CHAROPUS.

A genus defined by certain recondite characters, but generally known by the simple tarsi and spinose apex to the elytra in the male.

One species—*C. flavigipes*, *Ksw.*—is common over Sweden and Germany: it is of a greenish black, and has the base of the antennæ, the anterior tibiæ and tarsi testaceous. The nomenclature of this and the preceding species is very confused. The name *flavigipes* was first given by Fabricius, in 1787, which effectually precludes the adoption of Paykull's name for this species, given in 1798. Erichson identified it with *pallipes*, *Oliv.*, but erroneously; hence the only name left to adopt would be *rotundata* (*Geoffr.*), *Fourc.* 1787, which appears to belong to it, though the description is very incomplete.

G. R. CROTCH.

University Library, Cambridge.

Extract from the Monograph of Gymnetron, by M. H. de Barneville. Translated and communicated by G. R. CROTCH, Esq.

ALTHOUGH Mr. Walton made so careful a revision of our Curculionidæ, yet unfortunately he never published any descriptions, but only remarks on certain genera, in the 'Annals

and Magazine,' now little accessible. The voluminous work of Schönherr, from its very nature a compilation, is gradually undergoing a revision, and by no means before it is wanted, at the hands of MM. Allard, Stierlin, Kraatz, De Barneville, &c.; and it is my intention to translate, from time to time, such portions of the Monographs now publishing as may apply to our English Fauna.

Early in the spring I forwarded my series of *Gymnetron* to M. de Barneville, which he has kindly returned with his names attached: these differ, fortunately, but very little from those generally in use, and only one new species is added. In this genus the sexes often vary considerably; the male may be known by the impression on the metasternum and first ventral segment, as also by the shorter and more punctate rostrum. The species group themselves naturally under three heads, which have been regarded as sub-genera, and may be thus distinguished:—

- i. Rostrum filiform, sublinear; elytra subovate, slightly convex, almost covering the pygidium *Gymnetron*, i. sp.
- ii. Rostrum straight or attenuated, received into a channel of the thorax; elytra subquadrate; pygidium exposed.
Rhinusa, *Steph.*
- iii. Rostrum filiform, bent, received into a channel of the thorax; antennæ fine, club oblong *Miarus*, *Steph.*

I shall first reproduce M. de Barneville's Analysis, and afterwards give some description of the species separately. In the tabulation the species in *Italics* are those not yet discovered in Britain.

i. *GYMNETRON* (i. sp.)

- A 1. Elytra variable in colour, more or less ferruginous or testaceous.
 - B 1. Pubescence double.
Pascuorum, *Gyll.*; *ictericus*, Schh.
 - B 2. Pubescence simple.
villosulus, *Schh.*; Beccabungæ, *L.*
- A 2. Elytra ferruginous, with oblique black bands.
labilis, *Hb.*
- A 3. Elytra black, furnished posteriorly with a red spot.
stimulosus, *Germ.*
- A 4. Elytra black..... Rostellum, *Hb.*; melanarius, *Germ.*

ii. RHINUSA, Steph.

A 1. Rostrum straight, not attenuate.
 B 1. Rostrum filiform, male and female differing markedly.
 Thapsicola, Germ.
 B 2. Thorax transverse *netus*, Germ.
 B 3. Thorax nearly as long as broad, narrowed in front.
 melas, Schh.
 B 4. Thorax a little broader than long, narrowed in front
 and behind *collinus*, Gyll.; *Linariæ*, Pz.
 A 2. Rostrum attenuate at the apex.
 B 1. Form oval.
 C 1. Thorax transverse *Antirrhini*, Germ.
 C 2. Thorax a little broader than long.
 Noctis, Hb.; *Herbarum*, Bris.
 B 2. Form elongate *pilosus*, Schh.

iii. MIARUS, Steph.

A 1. Form oval.
 B 1. Posterior femora dentate. *Graminis*, Gyll.
 B 2. Posterior femora simple.
 Campanulæ, L.; *Micros*, Germ.
 A 2. Form elongate *Plantarum*, Germ.

1. *G. Pascuorum*, Gyll. (1815), Schh.—Black, with a gray pubescence; antenæ ferruginous; legs black or pale; tarsi always pale; elytra very variable, black or entirely ferruginous, most commonly with a red dash. $\frac{3}{4}$ —1 line. Very variable in size and form, extremely narrow individuals occasionally occurring; but the peculiar pubescence, partly raised and partly decumbent, will always distinguish it. It is found throughout Europe, in meadows. The *ictericus*, Schh., which has been found in Berlin, closely resembles it, but has the thorax shorter and the pubescence much longer and thicker.

2. *G. villosulus*, Schh. (1838).—Black, densely clothed with cinereous scales; elytra and legs obscurely ferruginous; suture darker; thorax with a dorsal line cinereous; elytra obscurely punctate-striate. $1\frac{1}{4}$ — $1\frac{1}{2}$ line. Recognized by its depressed, almost silky pubescence. It feeds on *Veronica Anagallis*, and is found nearly all over Europe; it is not,

however, common in this country: I have found it abundantly at Weymouth and near Cambridge. It is this species which appears to have been regarded as *Beccabungæ*, *L.*, by Walton.

3. *G. Beccabungæ*, *L.*, Schh. *Var. Veronicae*, *Germ.* (1821), *Schh.* *Var. niger*, *Walt.* — Black, clothed with a gray pubescence; sides of the thorax and breast densely covered with white scales; elytra distinctly punctate-striate, varying from entirely black to testaceous, with the margins alone dark. $\frac{3}{4}$ — $1\frac{1}{4}$ line. Throughout Europe, on *Veronica Beccabunga* and *Scrophularia*. The variations of colour are very great in this species. Mr. Wollaston long ago, in the 'Zoologist,' expressed his belief in their identity, which has been since abundantly confirmed.

4. *G. labilis*, *Hb.* (1795), *Schh.* — Black; antennæ, legs and elytra testaceous, the latter with the base, suture and two oblique fasciæ black. $\frac{3}{4}$ line. Throughout Europe, on *Plantago lanceolata* (*Duval*). The colouring renders this insect quite unmistakable.

5. *G. Rostellum*, *Hb.* (1795), *Schh.* — Black, sparingly cinereo-pilose; elytra deeply punctate-striate, regularly setose; legs black; tibiæ pale. $\frac{3}{4}$ line. Europe, in meadows and marshy places. The pale tibiæ will at once characterize this species. The *stimulosus*, *Germ.*, a species abundant throughout Europe, bears considerable resemblance to this insect, but has an apical rufous spot on each elytron.

6. *G. melanarius*, *Germ.* (1821), *Schh.* — Black, clothed sparingly with very short setæ; elytra punctate-striate, interstices narrow; thorax finely punctulated. $\frac{1}{2}$ — $\frac{3}{4}$ line. Rare in Europe, but it is commoner in this country than *G. Rostellum*.

7. *G. collinus*, *Gyll.* (1815), *Schh.* — Black, clothed more or less densely with yellowish hairs; thorax thickly punctate; sides a little rounded; tarsi piceous. $1\frac{1}{2}$ line. Male, femora acutely dentate; female, anterior femora almost simple. Northern and temperate Europe, but rare. Apparently rare in this country: I have seen specimens from Hampstead (E. W. Janson), and have taken it near Cambridge myself.

8. *G. Linariæ*, *Panz.* (1796), *Schh.* — Black, clothed with

short depressed cinereous hairs; rostrum much bent, cylindric; thorax dilated at the sides; elytra punctate-striate; femora considerably thickened, unarmed. $1\frac{1}{2}$ line. Throughout Europe, on *Linaria vulgaris*, but rare. The simple femora will always distinguish it from old examples of the preceding.

9. *G. Noctis*, Hb. (1795), Schh.—Black, subdepressed, covered with grayish hairs; rostrum short, subulate, obsoletely sulcate; thorax broader posteriorly, almost as long as broad; elytra distinctly punctate-striate; femora obsoletely dentate. $1\frac{1}{3}$ — $1\frac{1}{2}$ line. Throughout Europe and Algeria, on *Linaria vulgaris*. The *G. melas*, Schh., is very like this species, but has the rostrum straight and not attenuate. *G. Herbarum*, Bris., found on *Verbascum*, is a testaceous species. The *pilosus*, Schh., also found on the *Linaria*, is much larger, more elongate, and clothed with long hairs.

10. *G. Graminis*, Gyll. (1815), Schh.—Ovate, convex, sparingly clothed with cinereous adpressed hairs; thorax short, transverse; elytra punctate-sulcate; posterior femora obtusely dentate. $1\frac{1}{2}$ — $1\frac{3}{4}$ line. Central and Northern Europe, on various *Campanulæ*. By no means rare. The sculpture of the elytra distinguishes it at once from any other species.

11. *G. Campanulæ*, L., Schh.—Subovate, black, clothed sparingly with short cinereous hairs; thorax little broader than long, finely and very thickly punctured; elytra deeply punctate-striate; male with the penultimate ventral segment foveolated, and armed with two tubercles; femora unarmed. 1— $1\frac{1}{2}$ line. Europe, on various *Campanulæ*, but not common.

12. *G. Micros*, Germ. (1821), Schh.—Subovate, thickly clothed with cinereous hairs; rostrum slightly arcuate; thorax thickly punctured; elytra obsoletely punctate-striate; femora unarmed. 1— $1\frac{1}{3}$ line. S. France, Spain, Saxony, &c., on *Helianthemum guttatum*, in dry places (*Perris*). The only British specimens I have seen are two taken by Mr. T. V. Wollaston at Whitsand Bay, Cornwall, and which he had always regarded as a new species, though they were returned to him from London as *G. Pascuorum*, var.! The general form of the insect is that of *Campanulæ*, but the lightly striate elytra at once distinguish it.

13. *G. Plantarum*, Germ. (1825), Schh. — Oblong-ovate, black, sparingly cinereo-pilose; thorax nearly as long as broad; elytra punctate-sulcate; posterior femora subdentate. $1\frac{1}{2}$ line. Europe, on *Linaria*, *Lotus*, &c. Generally common. The more elongate form will readily separate it from its congenera.

Description of the Larva of Chelonia villica. — The egg is laid in July, on the stems of *Stellaria media* (chickweed), and the young larva emerges in about fifteen days, when it begins eating the leaves, which it continues nibbling at intervals throughout the winter, and until the following May, when it is full-grown: it has no regular period of hibernation. When full-fed it rests in a nearly straight position, but falls off its food-plant and rolls itself in a ring if disturbed. Head rather narrower than the 2nd segment, semiporrect; body obese, the interstices of the segments deeply incised; the 2nd segment has, immediately adjoining the head, a series of wart-like excrescences, from which emanate arcuate bristles bending over the head; the 3rd and 4th segments have each ten scabrous warts, one of which on each side is very small and placed immediately behind a larger one; the 5th and 6th segments have each fourteen such warts; the 7th to the 10th, both inclusive, have twelve warts; the 11th fourteen, the 12th twelve, and the 13th seven; each of the warts is surmounted by a fascicle of stiff bristles of various length; most of these bristles are curved, and the curvature directed backwards; the longest are on the 12th segment. Colour of the head pitchy red; of the dorsal surface of the body intense velvety black; the warts also being black, but not velvety, and the bristles ferruginous: belly smoky black: legs and claspers pitchy red. Spins a very slight cocoon among the weeds on hedge-banks, and therein changes to a blackish pupa: the moth makes its appearance about Midsummer. I am indebted to Mr. Moncreaff for a liberal supply of this larva, and for the particulars of its history.—*Edward Newman.*

Description of the Larva of Epione apiciaria. — The eggs are laid in August and September, on *Salix capræa* (sallow), on the leaves of which the larva feeds, but has not hitherto, so far as I am aware, been observed in the autumn: it is full-

fed the first week in July, and then rests in a nearly straight position, slightly bent at the ventral claspers, and slightly arched at the 6th segment, the head being porrected on the same plane as the body: when annoyed it doubles itself up and falls from its food-plant, feigning death for a very few seconds, and then making its escape with celerity. Head quite as broad as the 2nd segment; face flattened and without any conspicuous notch on the crown: body narrowest at the 2nd segment, and thence gradually increasing in breadth to the anal extremity; 5th segment with four dorsal warts, arranged in an exact quadrangle; 6th segment small, with a transverse belt of six warts or humps, the lateral ones being smaller and much less conspicuous than the others; there are very small dorsal warts on each segment following the 6th; the 12th segment has a slight but very perceptible protuberance on each side; there are, moreover, a number of minute warts on all parts of the body, and each of these emits a short bristle; the ventral surface of each segment, after the 4th, has two very small approximate warts placed transversely, and on the 6th segment these are fused into one. Colour of the head dingy brown, reticulated with darker markings, and having a white bar across the face; the antennal papillæ are also nearly white: colour of body of the same dingy brown as the head; there is a broad gray medio-dorsal stripe extending from the head to the 6th segment, where it vanishes between the two medio-dorsal protuberances; this stripe is somewhat constricted on the 3rd and 4th segments, but dilates on the 5th, to be again suddenly constricted on the 6th; this stripe has on each side a slender margin of pure white, and on its disk are numerous slender rivulet markings; on the dorsal surface of the 7th, 8th, 9th, 10th and 11th segments are two approximate light gray markings placed transversely; the dorsal warts are white, and so also is the outside of the ventral claspers, as well as a slender white sinuous stripe extending from thence towards the head; the ventral is much paler than the dorsal surface, and, in addition to numerous delicate rivulet markings, has two almost white interrupted stripes extending nearly its entire length: full-fed the 10th of July, when it spins a very slight web under leaves on the surface of the ground, and changes to a *pnpa*: the moth appears towards the end of the same month, also in August.

I am indebted to Mr. Wright for this larva. — *Edward Newman.*

Description of the Larva of Pseudopterpnna cytisaria. — The egg is laid on *Genista anglica* (dyer's-weed) and *Cytisus scoparius* (common broom), generally between the 20th and 30th of July; and the young larvæ usually emerge in fifteen days: they feed but sparingly, and are very small when winter sets in: they may then be seen sticking on the stems of the food-plants, perfectly rigid, and at an angle with the twig of 45°: they appear perfectly indifferent to weather, and even endure the severest frost without moving: in May they feed up voraciously, and by the middle of June are full-fed; they then rest in a very rigid but slightly bent position, the head tightly tucked in, and the legs crowded together and brought into immediate contact with the mouth. Head narrower than the 2nd, and considerably narrower than the following segments, deeply notched on the crown, which projects on either side of the notch into a conical but blunt point: body after the 2nd segment of uniform substance, slightly depressed, the sides slightly dilated immediately below the spiracles; the anterior margin of the dorsal surface of the 2nd segment rises into two conical but blunt points, very similar to those on the head, and having a similar inclination forwards when the larva is at rest: the 13th segment terminates in two points directed backwards: entire surface of head and body finely granulated or shagreened. Colour of head and body dull opaque green; the conical points on the head tipped with pink: the conical points on the 2nd segment also pink; dorsal surface with a narrow medio-dorsal stripe a shade darker than the ground colour; at some distance on each side of this is an equally narrow stripe a shade lighter than the ground colour; the lateral dilatation is white, tinged throughout with pink and bordered below with red; this dilatation, thus coloured, forms a most conspicuous lateral stripe, commencing immediately behind the head, ceasing on the 4th segment, and, commencing again after the third pair of legs, terminates on the 12th segment: spiracles very pale: the ventral surface has three very distinct white stripes, which converge without meeting between the third pair of legs: legs and claspers concolorous with the body; anal points pink. My specimens, for which I am indebted to

Mr. Doubleday, were full-fed on the 14th of June.—*E. Newman.*

Description of the Larva of Nonagria pudorina.—The eggs are laid on *Arundo Phragmites* (common reed) and several grasses, on which the larva feeds. The full-grown larva rests in a perfectly straight position, and when disturbed falls off and forms a lax ring, but almost immediately unfolds to resume the straight position. Head porrected, of the same width as the 2nd segment: body obese, cylindrical, tapering towards the anterior extremity. Colour of head and body pale wainscot-brown: head glabrous, with darker reticulated markings, and having two approximate, longitudinal, dark stripes on the face, which diverge at the clypeus; body with two closely approximate, but very narrow and very indistinct, medio-dorsal black stripes, exterior to which are numerous very delicate reticulated or rivulet markings, of a smoky black colour; again, exterior to the somewhat wide space occupied by these, is a distinct double stripe on each side, of a dark smoke-colour, almost black; this has the exterior margin darker than the interior margin, and bounded by a narrow lighter stripe, which makes it still more conspicuous; exterior to this are four lateral stripes, each composed of multitudinous delicate markings, the lowest on each side containing the perfectly black spiracles; below the spiracles is a broader pale stripe, and then a delicately reticulated surface of rather a darker hue; each segment has two very small but intensely black dots on its dorsal surface, equidistant from the double medio-dorsal stripe and the next dark stripe; and ranged along each side is a series of black dots, one above each spiracle, and another behind each spiracle; and similar black dots occur below the lowest lateral stripe; ventral surface, legs and claspers of the same pale wainscot-brown as the general dorsal surface. I am indebted to Mr. Thomas Brown, of Cambridge, for this larva.—*Edward Newman.*

Description of the Larva of Nonagria lutosa.—The egg is laid in August, September, and even occasionally so late as October, on the stems of *Arundo Phragmites* (reed); and the young larva very shortly emerges, and eats into the stem, descending towards the roots, on which it feeds below the surface of the ground; it feeds during the remainder of the autumn, and probably also throughout the winter and spring,

ceasing and remaining in a quiescent state only during severe frost: when full-fed it gnaws its way upwards, and just above the surface of the earth it erodes the reed-stem, in a circular form, sufficiently large to admit of the escape of the moth, but invariably leaving a thin epidermal layer of cuticle, just sufficient to prevent the influx of water in flood-time, but offering very slight resistance to the moth when, having accomplished its final change in August, it is prepared to enter on its new career. The larva is full-fed about Midsummer: head exserted, protracted in crawling, nearly equal in width to the 2nd segment, semiglobose, prominent and glabrous: body very long, maggot-like, flabby, gradually attenuated towards the anal extremity; a corneous, glabrous, dorsal plate on the 2nd segment; the dorsal surface transversely wrinkled when at rest, and having a lateral skinfold; small bristles are scattered over the body, more especially on the 13th segment. Colour of the head clear chesnut-brown, with black labrum and mandibles: body pale flesh-colour; the ventral paler than the dorsal surface; the legs and claspers of the same pale hue as the ventral surface. Changes to a smooth brown pupa in the interior of the reed, and the moth makes its appearance in August. I am indebted for a supply of this larva to Mr. Thomas Brown, of Cambridge, whose kindness in supplying me with larvæ, as well as information respecting them, I have frequently had to acknowledge.—*Edward Newman.*

Entomological Notes and Captures.

149. *Remarks on the Synonymy of the Genus Dasytes.*—*D. aeratus*, Steph., an insect common throughout the country, seemed to be almost undescribed in continental works, and has therefore been queried as *aeneiventris*, Kust. That species is, however, Italian, though possibly only a variety of the present. *D. aeratus* would seem to have been first described and figured by Olivier, in 1790, but was erroneously referred by him to the *M. aeneus*, F. Schönherr, in 1817, corrected the error, proposing the name *subaeneus*, under which it has been described by Redtenbacher. Its synonymy will therefore stand thus:—

subaeneus, *Schh.*, *Redt.*, *Ksw.* (I. D. iv. 640).
aeneus, *Oliv.* nec *Fabr.*
æratus, *Steph.*

It may always be known by its concolorous legs and uniform nigro-æneous appearance. The other common *Dasytes* is generally known as *D. flavipes*, *Fabr.*; that insect was, however, an *Anobium*; hence the present species will have to be called *D. plumbeus*, *Müll.* (1776), *Ksw.* This insect is very likely to be mixed with *D. fusculus*, *Ill.*, which has also pale tibiæ, but is larger and has the antennæ entirely black. The male is very elongate and narrow. All these three *Dasytes* agree in possessing a rugulose or scabrous punctuation and quadrate thorax, forming the sub-genus *Hapalogluta*, *Thoms.* Another group of nearly-allied species has been separated as *Psilocorse*, *Thoms.* (Sk. Col. vi. 149), having the elytra generally punctate, the thorax transverse and plainly margined at the base. To this belongs *D. niger*, *L.*, a species very rare in this country, and two others not yet found, *viz.*, *D. obscurus*, *Gyll.*, distinguished by its bluish tint, and *D. borealis*, *Thoms.*, which resembles the preceding section in having the elytra scabrous. I have seen two examples captured in the New Forest (both females), which must be very close to this species. They have the elytra scabrous without any punctuation, and the thorax decidedly transverse, but are a little smaller than the *D. borealis* should be.—*G. R. Crotch* ; *University Library, Cambridge.*

150. *Spiders preying upon Earwigs.* — The great profusion of earwigs which infested my garden during last summer, skulking in the flower-buds or in contorted currant leaves, led me to devise various methods of reducing their numbers. Amongst other means, less straightforward perhaps than crushing them whenever seen, I used to place them in the webs of the common garden spider, towards which much-abused creature I have for a long time entertained a friendly feeling. I was doubtful though, at first, whether this aliment would be pleasing to a spider's appetite, as I had rarely seen these insects made captives. Only two spiders, however, rejected my gifts; a number of others I supplied, for several weeks, with an earwig once or twice a day, removing the insects from their retreats with a pair of forceps. Of the two recusants, one did accept earwigs,

but, having been too bountiful to it at first, to the extent of three or four in one day, it occasioned a surfeit I suppose, and thereafter would receive no more. The other was, from some cause, unsuccessful in securing them when they were placed in its web ; and although I tried on two or three occasions, each time they broke away, nearly demolishing the web. Most of the spiders seemed to be aware that to secure earwigs required a peculiar "knack;" hence they treated them quite in a different manner to the rest of their prey. They generally endeavoured to "double them up," bringing head and tail together, and then passing over them successive coils of silk, rarely striking them with their fangs at first, but leaving them to struggle until exhausted. I noticed that the earwigs did not attempt to strike their enemies with their forceps ; but one would occasionally seize in his jaws a leg of the spider who was rolling him round to enwrap him in his thread.—*John R. S. Clifford* ; 21, Robert Terrace, Chelsea, April 24, 1865.

151. *Do Larvæ obtain Nourishment from the Egg, in the same way as Birds when hatched?* — I had some larvæ hatched on the 14th instant ; and although I have been unable to obtain any food for the unfortunates, they are still alive, and seem in no way the worse for their abstinence. I may mention that they greedily "lap" up water which I place in their cage.—*William Gibson* ; 9, Lupus Street, London, April 19.

152. *French Honey.* — A great portion of the immense quantity of honey consumed in France is supplied from the island of Corsica and from Brittany. Corsica produced so much wax in ancient times that the Romans imposed on it an annual tribute of 100,000 lbs. weight. Subsequently the inhabitants revolted, and they were punished by the tribute being raised to 200,000 lbs. weight annually, which they were able to supply. Wax is to honey in Corsica as one to fifteen, so that the inhabitants must have gathered 3,000,000 kilogrammes of honey. When Corsica became a dependency of the Papal Court it paid its taxes in wax, and the quantity was sufficient to supply the consumption not only of the churches in the city of Rome, but those in the Papal States. Brittany likewise supplies a great quantity of honey, but of inferior quality to that of Corsica. The annual value of the

honey and wax produced in that province is estimated at 5,000,000 f."—*Times*, March 28, 1865.

153. *Cryphalus Tiliæ discovered in Britain*. — Turner took eight or ten specimens of this insect in December, 1860, near Bridgnorth, and has recently taken a larger number near Lincoln; it feeds on the bark of a tree called "bass," and supposed by Dr. Power to be a lime. It is described by Fabricius, S. E., ii. 383; and by Ratzeburg, Forst. i. 164, tab. xii. fig. 20. [See Ent. Mo. Mag. No. 9, p. 212.]

154. *Correction of an Error*. — Allow me to draw your attention to an error in No. 14 of the 'Entomologist,' since I have no wish to appropriate credit that does not belong to me. In paragraph 135 I am called the discoverer of the galls of *Laverna decorella* in the stems of *Epilobium*. In the 'Entomologist's Weekly Intelligencer' for March 9th, 1861 (No. 231) is an extract, from the 'Stettin Entom. Zeitung,' of a note by Senator von Heyden, in which he records the breeding of *Momphis divisella* (*Laverna decorella*) from galls in the stems of *Epilobium alpinum*. It was only after being repeatedly urged by Mr. Stainton to search, and after having examined many species of *Epilobium* in vain, that I at last found the galls. All I can claim then is to be the first to have found the galls in this country, and to have added some trifling observations to those of Senator von Heyden.—*C. G. Barrett; Haslemere, May 11, 1865.*

Supplement to Doubleday's Synonymic List of British Lepidoptera. — Mr. Doubleday has prepared a complete Supplement to his 'Synonymic List,' bringing up this catalogue of indigenous Butterflies and Moths to the present time. It is stitched up with No. 14 of the 'Entomologist' (price sixpence), and also with the copies of the 'Synonymic List' that are yet unsold. *This Supplement will not be sold separately.*

 No. 16 of the 'Entomologist' will be published on the 15th of June. Prepaid subscribers will receive it gratis.

THE ENTOMOLOGIST.

No. 16.]

JULY, MDCCCLXV.

[PRICE 6D.

Modern Captures of Rare Coleopterous Insects.
By FREDERICK SMITH, Esq.

THE capture of a rare Coleopteron naturally induces me to refer to the last-published list of reputed "British species requiring further evidence to prove that they are really of indigenous origin." I have observed, in more than one instance, that all the proof really required is a certainty of their modern capture, that of course being in some situation not apparently likely to be resorted to by a foreign immigrant. Now, I myself have a proneness to be quite as well satisfied with such a note as the following:—"I have hitherto seen but six specimens (of *Lebia turcica*) taken in Oakhampton Park, Somersetshire." Any person who was intimately acquainted with the late J. F. Stephens knows, in the first place, that he was a most scrupulous inquirer into localities, and would not have appended such a note had he not been fully assured of the capture; neither would he have told us that he was indebted to Dr. Leach "for a fine series of specimens (of *Diachromus germanus*) taken at Kingsbridge by the late Mr. Cranch, in June, 1816." The two foregoing notes are, to me, as good evidence as I could possibly obtain in the present day; therefore I would remove both these British species at once from the "reputed" list. *Lebia hæmorrhoidalis*, having been quite recently captured, is, I presume, entitled to be ranked as a true Britisher. In the "reputed" list I also find *Apate capucina*: Mr. Stephens says, "Three specimens only, I believe, have hitherto been found in England; the first taken many years since in London; a second in Derbyshire; and a third on the coast of Norfolk, near Cromer." In addition to this I may add, of my own knowledge, that, some years ago, I was engaged by the late Rev. F. W. Hope to arrange his Hymenoptera, and had directions to search in every box in his store-room, which

contained a very great number, and to extract all the Hymenoptera. I found, while thus searching on one occasion, a small chip-box, containing probably forty or fifty insects, and written on the bottom of the box, "Longmont, Shropshire;" amongst them were six or seven specimens of *Apate capucina*. On pointing this out to Mr. Hope he expressed his satisfaction at the finding of the box, and he added, "I thought I had lost it: those specimens I took all on one morning in the forest." To the foregoing I will add that my youngest son, Edgar Smith, in company with his eldest brother, took a fine and perfect specimen of *A. capucina* on the 21st of the present month; it was running on the trunk of a barked and felled oak in Bishop's Wood, Hampstead. Surely this accumulation of evidence will prove sufficient to warrant the removal of *Apate capucina* from the list of doubtful Britishers.

FREDERICK SMITH.

British Museum.

Entomological Notes and Captures.

155. *A List of Lepidoptera collected in Persia in 1859—62.*—I have the pleasure to enclose you a list of Lepidoptera captured by me in Persia: they were all captured in Irak (part of the ancient Media) at an elevation of from three to ten thousand feet above the sea:—

Papilio Machaon and *P. Podalirius*. Common.

Gonepteryx Cleopatra.

Colias Edusa, *C. Hyale*, *C. Europome*, and the small variety of each, if not a distinct species.

Pieris Brassicæ, *P. Rapæ*, *P. Napi* and *P. Daplidice*.

Anthocharis Cardamines.

Arge Galathea.

Satyrus Megæra. (*L. Ægeria* I have never taken either in India or Persia).

S. Semele. Abundant.

Chortobius Hero. Abundant.

C. Pamphilus. Very common.

Cynthia Cardui. Very common.

Vanessa Atalanta. Scarce.

V. C-Album. Not uncommon.

Argynnis Paphia and A. Lathonia. Common.

Polyommatus Phlæas, P. dispar, P. Chryseis, and five others.

Lycæna Argiolus, *L. Alsus*, *L. Arion*, *L. Corydon*, *L. Adonis*, *L. Alexis*. (The only place where I ever met with *L. Artaxerxes* was on the Yaila Dagh, above Yalta, in the Crimea, in June, 1856).

Thymele Alveolus.

Pamphila Sylvanus.

Chœrocampa Celerio. Two specimens at Meshed, in Khorassan, in May ; one at Goolhek, near Tehran, September.

C. Elpenor.

Smerinthus ocellatus and *S. Populi*. Occur occasionally.

Macroglossa Stellatarum. Swarms.

Sphinx Vitis. Occurs in vineyards.

Zeuzera Æsculi. One specimen.

Saturnia Carpini. Common in the larva state, but by no means so in the imago.

Agrophila sulphuralis.

Plusia Iota and *P. Gamma*.

Catocala nupta, *C. promissa* and *C. sponsa*.

Deiopeia pulchella. Very common.—*Arthur Young, Assistant Conservator of Forests, Sealkote, Punjab, March 28*.

[This short list of Lepidoptera, inhabiting a country so widely separated from our own, is extremely interesting to the British Entomologist : Mr. Young does not state whether it is complete, or whether he has selected those species which occur in our British list : I imagine the latter to be the case, seeing that the six non-British species introduced have been fraudulently or accidentally represented as British : I allude to *Papilio Podalirius*, *Gonepteryx Cleopatra*, *Colias Euro-pome*, *Chortobius Hero*, *Polyommatus Chryseis* and *Sphinx Vitis* : the appearance of *Lycæna Agestis*, var. *Artaxerxes*, in the Crimea is also highly interesting.—*Edward Newman*.]

156. *Natural Situation of Stylops among Insects*. — The transference of this Coleopterous genus to the Neuroptera is by no means so novel an idea as the learned President of the Entomological Society seems to suppose (Entom. 203). In the 129th volume of Lardner's 'Cabinet Cyclopædia,' intituled "On the History and Natural Arrangement of Insects, by William Swainson, F.R.S., and W.E. Shuckard, Lib. R.S.,"

the Stylopidae constitute one of the five families of Neuroptera, the others being Libellulidae, Gryllidae, Forficulidae and Phryganidae, and the situation of the Stylopidae being between the Forficulidae and Phryganidae. An abstract of this system will be found in the 'Entomologist,' at p. 38 of the first volume (1842). Mr. Swainson's observations, which I have there quoted, show us that he has enunciated a "law of universal representation which saves a world of explanatory details;" so that he holds himself excused from giving his reasons for placing Stylops in the Neuroptera and next to the Phryganidae. I have elsewhere stated my reasons for considering Stylops coleopterous, and I have never met with a competent coleopterist who maintained a dissentient opinion. The natural situation of the family Stylopidae is amongst those Heteromera of which the larvae are parasites in the nests of social Hymenoptera; such are Ripiphorus, Sitaris, and others, the larva in all which is metamorphic, being first hexapod and active, afterwards apod and stationary.—

Edward Newman.

157. *Remarks on Cœnonymphpha Typhon and C. Davus.*—Some time ago I sent specimens of *C. Typhon* to Prof. Hering, who informs me they are the *var. Rothliebii* of German writers, and that similar examples had been taken near Hamburg. *C. Typhon* is not rare in Argyleshire (where I have found it scarcely above the sea-level), and all that I have seen, differ from *C. Davus* in having the white streak on the under side of the fore wings far more oblique, and directed towards the *anal angle*; while in all the specimens of *C. Davus* I have seen it is directed towards the *inner margin* at some distance from the angle. Typical *C. Davus* from Germany more resemble Scotch than English specimens.—*A. Wilson, in Ent. Mo. Mag.* p. 216.

158. *Occurrence of Gonioctena affinis of Gyllenhal, a Species new to Britain.*—Among some British Coleoptera belonging to Mr. Cocking, of Norfolk, I have found one specimen of a *Gonioctena*, which agrees with Gyllenhal's description of *affinis*, and which Mr. Cocking informs me he found among some sweepings belonging to Mr. Winter. The latter does not remember taking this insect, but has no doubt that it was captured by himself, with *Leptura sanguinolenta* (also in Mr. Cocking's box), in the Norfolk fens, as he had not collected

elsewhere. *C. affinis* resembles *10-punctata*, but is easily distinguished by its black thorax, which is also less contracted in front, and by the interstices of the elytra being destitute of punctures. There appears to be a variety with the tibiæ and sides of the thorax reddish.—*C. O. Waterhouse, in Ent. Mo. Mag.* p. 278.

159. *A new Locality for Micra ostrina.*—It was in the month of July, a few years since, that I captured, on the sand-hills at Pembrey, South Wales, a pretty insect, whose identity I have, until lately, been utterly unable to establish. The spot at which I secured it was rather barren and sandy, in a sheltered situation; an abundance of dwarf sowthistles grew in the vicinity, and also, as far as I can remember, thistles, bedstraw, wild thyme, and a short kind of grass, from which latter I expect that I disturbed it; at any rate the insect was flying low over the barren sand when I caught it. The day was showery, with occasional gleams of sunshine, during which *H. Semele* and other butterflies were on the wing. During one of these gleams I took the insect, and, seeing that it was something I did not know, boxed and pinned it at once. The recollection of the capture is very fresh in my mind, owing to the pleasure of the expedition and the difficulty I have had in getting the insect named.—*John T. D. Llewelyn, in Ent. Mo. Mag.* p. 282.

160. *Hybernation of Cidaria miata in the Imago State.*—The Rev. E. Horton, of Worcester, and Mr. Barrett, of Haslemere, have severally written to me in reference to my note at page 208, on *Cidaria miata*; they both disclaim the intention of announcing this as a new discovery, and I regret having misunderstood them. Under the circumstances it will be best to quote entire the passages to which I referred:—
“*Hybernation of Cidaria miata.*—Yesterday, while helping to remove the snow from the top of my house, I saw a fine specimen of *Cidaria miata* with its wings up, walking daintily on the dazzling snow-drift. It had probably been disturbed from its hybernaculum under the tiling.—*E. Horton; Worcester, Feb. 1, 1865.*” “*Hybernation of Cidaria miata and other Lepidoptera.*—Lately, on a bright sunny day, when one could see as well indoors as out, I found time to carefully examine two empty buildings. The result was that I found the following species hybernating on the walls and ceilings:

—4 *Vanessa Urticæ*, 2 *Cidaria miata* (in very fine condition), 4 *Gonoptera Libatrix* (also very fine), and 5 *Alucita polydactyla*. I used to fancy that some of the *miata* remained in pupa all the winter, as the spring examples were sometimes so fresh-looking; but certainly no bred specimens could exceed in brightness of colouring the two above mentioned. The species must be abundant about the building, for there were lots of the wings in the spiders' webs with which the windows were plentifully furnished.—*C. G. Barrett: Haslemere, February 1, 1865.*" It seems to me that the very titles of these papers convey the idea that the hibernation of *Cidaria miata* was the fact recorded; but Entomologists must judge for themselves.—*Edward Newman.*

161. *Rose-shaped Galls of the Willow*.—You will find, on reference to the Report of the March Meeting of the Entomological Society (Entom. 212), that Mr. Bond exhibited a quantity of rose-shaped galls, from the tips of the highest twigs of willow trees, found in the neighbourhood of Cambridge. At the Meeting it was the opinion, expressed by some of the members, that these galls were produced by the punctures of some species of *Cynips*; others inclined to the opinion that they were those of some Dipterous insect. As no opportunity had been afforded members to examine the larvæ, all was mere surmise. Mr. Bond kindly supplied me with a quantity of these galls, and I am now breeding from them a species of *Cecidomyia*. I find, on reference to Mr. Walker's Monograph on the Diptera, that several species of *Cecidomyia* cause rose-shaped galls to form on different species of willow—*C. albipennis*, *C. rosaria*, *C. heterobia*, &c., but none of these appear to be our insect. Probably Mr. Inchbald has already, or will let us know, the name of the fly, if it be not new to Science. My only object in communicating this information is to make known the result of my experience in breeding the insect. I should add that I have also bred, probably from the twigs on which the galls are formed, a few specimens of a species of sawfly belonging to the family *Nemati*, and I believe of the genus *Cryptocomopus*: these particulars I hope to communicate shortly.—*Frederick Smith: British Museum, May 15, 1865.*

P.S.—My correspondent, Mr. P. Inchbald, published, in the June number of the 'Naturalist,' a paper on "The

Willows and their Galls." This passage appears to refer to our rose-gall:—"In the winter and spring the uppermost shoots (of the great round-leaved willow or palm) not unfrequently terminate in a tuft of withered leaves, in the form of a rose. If this be examined more narrowly, the centre will be found to consist of closely-fitting bracts, and in the midst of them is a reddish-coloured grub. This is the pupa of a gall-gnat (*Cecidomyia rosaria*). The insect that I have bred does not correspond with that described by Mr. Walker in the third volume of the 'Insecta Britannica,' which I believe to be identical with that of Loew; and the grubs that I opened out of the galls were white. Mr. Walker promises to investigate the matter. I notice, in the descriptions of the species, that some are said to form "roseate-like galls," others "rose-formed galls," &c. I therefore conclude that the galls from Cambridge are probably the work of a different species to those found by Mr. Inchbald in Yorkshire.—

F. Smith; May 16.

162. *Species and Varieties.*—[I have copied, with permission, the following observations from a letter addressed by H. von Heinemann to Mr. Doubleday, in reference to a collection of Lepidoptera forwarded by the last-named Entomologist.—*E. N.*—]The series of *Cidaria russata* and *immanata* are very beautiful and instructive, but I cannot find any distinction between the perfect insects; yet your remarks upon the larvæ, and the different custom of life which you have given, make it appear that they are, without doubt, different species. I have always taken the larva of *C. russata* in April and July, but have never found the larva of *C. immanata*. *Cidaria miata*, *L.*, is also different from *C. psittacata*; and I think you are correct in regarding *Oporabia filigrammaria* and *autumnaria* as distinct from *dilutata*, and *Boarmia perfumaria* as distinct from *rhomboidaria*. I also consider *Cerastis spadicea* a good species: as for the colour and markings of *Cerastis Vaccinii* they are very variable, and I possess some specimens that are very like *spadicea*, but the tip of the fore wings is usually more obtuse than in *spadicea*: I have only bred *Vaccinii* from the egg, and have never obtained a specimen of *spadicea*. Your *Eupithecia absynthiata* is surely different from ours: it has all the wings darker and more mixed with gray; the spots on the costa are larger;

the points on the veins not so conspicuous, and the tips of the fore wings are more rounded. The larvæ also seem particularly to differ ; that of our *absynthiata* is found only on *Artemisia*. *Miana fasciuncula*, *Agrotis lunigera*, *Procris Geryon*, and *Retinia pinicolana* are all, I believe, good species ; *Lithosia molybdeola* surely is different from *aureola*, and I think also *Lithosia pygmæola* from *pallifrons*. The two latter species are very similar, but there may be some little difference in the veins. Relative to *Bombyx Callunæ*, I might also consent to your opinion that it is different from *Bombyx Quercus*, but I possess a pair of *Quercus* that appear intermediate : the form of the yellow band turns a little down to the anal angle, but not so evidently as in *Callunæ* : the colour of the female is darker than in *Quercus*, but clearer than in *Callunæ*.—*H. von Heinemann ; Brunswick, May 9, 1865.*

Entomological Society.

April 3, 1865.—Mr. Saunders exhibited a number of galls collected during the previous year in Southern Syria by Mr. B. T. Lowne. One was on a species of *Acacia*, from Engedi ; another was of scaly or flaxy material placed round the stems of *Atriplex Italinus*, from the Dead Sea ; a third, probably the gall of a Dipterous insect, was on a grass ; a fourth kind occurred on *Reaumuria*, from Ain Terebeh, Dead Sea ; a fifth on *Ærua Javanica*, from Engedi ; a sixth on a *Salvia*, from the same locality ; and a seventh kind was found on a species of *Tamarix*, at Ain Terebeh. With respect to the first two, Mr. Saunders was unable to say with certainty whether they were the nidi of insects ; the gall on the tamarisk bore great resemblance to that described and figured in the 'Transactions' some years ago, and was probably caused by one of the *Buprestidæ*.

Mr. Pascoe read the following note :—“ Last July, when passing over the snow-fields on the top of Monte Moro, at an elevation of about 8000 feet, I noticed here and there a sharply-defined cylindrical hole in the snow, such as might have been caused by pressing a wine-cork into it. These holes were generally about an inch in depth, and at the bottom of each was either a small lump that looked like peat, or

more frequently an insect, invariably either Dipterous or Ichneumonideous. I cannot account for the lumps of peat; but I imagine that the insects settling on the snow, became torpid from its low temperature, and sank gradually (or perhaps rapidly) into it, the hole being caused by the melting of the snow by the radiation of heat from the insect. The solar rays on mountain summits are asserted to be warmer than those falling on the plains, but there is no doubt that the radiation from solid bodies at great elevations is very marked. I took *Cryptus tarsoleucus* apparently not long alighted, and still feebly moving a wing or a leg. Perhaps it is only in the finest weather that insects would take so lofty a flight; however, a little lower down, *Bombus montanus* was not uncommon, enjoying itself amongst the flowers of a *Linaria*, but surrounded on all sides by patches of snow. Nearly up to the same point I frequently passed a little black moth, *Psodos trepidaria*, taking its short trembling flight. Higher than either of these, and among some short grass in the middle of the snow, I found a *Byrrhus*. These were the last evidences of animal life observed. But as flowering plants extend to upwards of 10,000 or even 11,000 feet, it would be interesting to learn if insect-life in any form co-exists with them. A mammal, *Arvicola nivalis*, is found, I believe, at the highest point of phanerogamic vegetation."

In reply to enquiries, Mr. Pascoe added that the insects in the snow were all dark in colour, that the holes were on the slope of the mountain on which the sun was shining directly, and that they were truly cylindrical, not hemispherical, or narrowed at the bottom. His explanation of the phenomenon did not meet with general acceptance; it was objected that radiation was scarcely likely to produce a cylindrical excavation; and Mr. Wallace doubted whether an insect of so small bulk and mass, and which could only give off by radiation the heat which it had first absorbed, was capable, even though of a dark colour, of absorbing sufficient to produce the considerable melting of the snow around it which Mr. Pascoe had described.

May 1, 1865.—Mr. S. Stevens produced a *Cassida*, which he had hoped to have exhibited alive; it had been found some days previously in London, near a newly-opened case

of Orchids, but had unfortunately died a few hours before the Meeting. Mr. Baly recognized the beetle as belonging to the genus *Prioptera*, probably a new Himalayan species.

Mr. Stainton exhibited a nest of smooth (hairless) Lepidopterous larvæ found near Marlborough, hanging from a beech-tree by means of silken strings, which were at first mistaken for threads.

Mr. Dunning read the following extract from the 'Journal of the Society of Arts' for the 14th of April, 1865 :—"A new American Silkworm.—It appears, from 'Silliman's Journal,' that, after numerous experiments, Mr. L. Trouvelot, of Medford, Mass., has succeeded in rearing successfully, and in great numbers, *Attacus Polyphemus*, *Linn.*, and in preparing from its cocoon an excellent quality of silk, possessing great lustre and strength, and pronounced superior to Japanese and all other silks, except the best Chinese, by competent judges. The silk is unwound by a simple process perfected by Mr. Trouvelot, each cocoon yielding about 1500 yards. This insect is very hardy, being found throughout the Northern States and Canada; and, as it feeds upon the leaves of oak, maple, willow, and other common forest trees, may be reared easily in any part of the country. Mr. Trouvelot has gradually increased his stock from year to year, by raising young from the eggs of the few individuals first captured, until he has at present seven waggon-loads of cocoons, the entire progeny of which he proposes to raise during the coming season. The first public notice of his experiments with this insect was given by Mr. Trouvelot at a meeting of the Institute of Technology, at Boston, about a year ago, when he exhibited specimens of silk manufactured from it, both natural-coloured and dyed."

Mr. F. Smith read the following letter from Dr. T. C. Jerdon, dated "Lahore, March 16, 1865:"—"I have at last got hold again, after a long absence, of the specimens of workers of *Dorylus*, and they are, as you suggested, evidently, I think, *Typhlopone*. It is, however, strange to say, quite a *Termes* in its *habits*, working under ground *entirely*, and never coming outside except when the males are coming forth winged, when they accompany them in swarms to the holes by which they make their exit. I first observed the workers at Mhow, in Central India, where they had under-

mined a house so completely that the foundation had to be dug up, and I there saw the winged males (*Dorylus*) issuing out of the same holes as the workers. I afterwards saw them twice again; the last time in a green-house of the Botanical Garden at Saharumpore, N.W. Prov. They were issuing every morning and evening in great numbers from a hole in the flooring (lime), and several winged individuals were with them, and these entered houses at night: this was in February. Dr. Jameson laughed me to scorn when I talked of digging up the flooring of his pet green-house, but if I ever get an opportunity of another nest in a get-at-able situation, I will try and get at the mystery of the female. Surely, however, some of the winged individuals must be females; if not, then the only other conclusion is that the female always remains apterous, and is impregnated in the nest; or, if winged, that she is kept a forcible prisoner till her wings drop off. I would have written long ago, but was separated from the bottle containing the workers."

Mr. F. Smith thought there was now little doubt that *Typhlopone* was the worker of *Dorylus*, as had been suggested years ago by Shuckard. The female, however, was still unknown.

The Rev. Hamlet Clark exhibited an interesting collection of *Phytophaga* received by him from Dr. Du Boulay, who captured them in the district of Champion Bay, West Australia. Among the many novelties was a very abnormal form of *Eumolpidæ*, unique in structure not only among *Eumolpidæ* but throughout the *Coleoptera*: the male leaps vigorously and quickly when captured, and it is the only species of *Eumolpidæ* that is known to be saltatorial; but the *medial* femora which give this power of leaping: the posterior femora are of ordinary form, or perhaps somewhat attenuate; the medial, however, are very robust, incrassated, sufficiently elongate and with strong and curved tibiæ. Mr. Clark remarked that it might be a question whether the insect properly belonged to the *Eumolpidæ* or to some other group: he stated that it had been carefully examined not only by himself but by Mr. Baly, and that there seemed to be no doubt on the subject. He proposed to create a new

genus for the reception of this insect, and to describe it under the name of *Thaumastomerus viridis*.

The Rev. H. Clark read from 'The Reader' of the 1st of April, 1865, the following extract from a review of Cameron's recent work on 'Our Possessions in Malayan India':—“The following account of that very common tropical phenomenon, the light of the fireflies, is altogether new to us, and not quite intelligible. Does the author mean that the little insects actually keep time with each other so accurately, that thousands of them scattered over a shrub or tree all put out their lights at the same instant, and rekindle them with equal punctuality? If so, here is a new insect-wonder, before which the economy of bees and ants will sink into insignificance:—‘The bushes literally swarm with fireflies, which flash out their intermittent light almost contemporaneously; the effect being that for an instant the exact outline of all the bushes stands prominently forward, as if lit up with electric sparks, and next moment all is jetty dark—darker from the momentary illumination that preceded. These flashes succeed one another every three or four seconds for about ten minutes, when an interval of similar duration takes place, as if to allow the insects to regain their electric or phosphoric vigour.’ We commend this as a subject of investigation for those naturalists who are so fortunate as to live among fireflies.” The reading of this extract was followed by an animated discussion, in which the Rev. Hamlet Clark, Mr. M'Lachlan, Mr. Bates, Mr. Saunders, M. Sallé, and Professor Westwood took part.

The Rev. H. Clark mentioned that a lady residing near Buckingham Gate had introduced into her garden a quantity of peat for horticultural purposes, and now found that part of the garden to be very much infested with wood-lice. When asked for a remedy, he had suggested the application of hot water, or the importation of toads; he was curious to know whether there was any affinity between the peat and the wood-lice? — were the latter breeding in the peat, or feeding on it?

Mr. Stainton directed attention to a paper by Mr. B. D. Walsh, “On the Insects, Coleopterous, Hymenopterous and Dipterous, inhabiting the Galls of certain species of Willows,” published in the Proceedings of the Entomological

Society of Philadelphia for 1864. In this paper the author proposed to name and describe the galls found on willows at Rock Island, Illinois, the insects which produce them, and also other insects which habitually breed in the galls formed by true gall-makers, and which, as they feed on the substance of the gall itself, and only occasionally or incidentally destroy the gall-making insect, may be appropriately considered as "Inquilines" or Guest-flies. Mr. Walsh enumerates five species of willow — *Salix discolor*, *Muhl.*, which yields three distinct galls; *S. cordata*, *Muhl.*, which yields six galls; *S. longifolia*, *Muhl.*, which yields three; *S. nigra*, *Marshall*, which yields two galls; and *S. humilis*, *Marshall*, which yields no less than ten distinct galls; some of these galls, however, occur on more than one species of willow. Besides the true galls, a Coleopterous pseudo-gall was found on *Salix longifolia*. Of twenty-one undoubtedly distinct galls, twelve are made by Diptera (Cecidomyidæ) and six by Hymenoptera (Tenthredinidæ). In addition to a great number of insects which occasionally inhabit these galls, there are, of true inquilines, which seem to inhabit them exclusively, but without confining themselves to one particular species of gall, seven Cecidomyidous species, two Tenthredinidous species, and at least one, and probably four or five, Coleoptera, besides seven species of Micro-Lepidoptera. The author points out the danger of mistaking inquilines for the true makers of the gall, and gives numerous instances in which sawflies are inquilinous in the galls of gall-gnats, and gall-gnats inquilinous in the galls of sawflies. The same gall is often inhabited by several different species of inquilines, and many species of guests habitually live in the galls of several different species of hosts. Occasionally one and the same species is sometimes inquilinous in the galls of other insects, and sometimes attacks natural substances in no wise connected with galls. "Nothing gives us a better idea of the prodigious exuberance of insect life, and of the manner in which one insect is often dependent upon another for its very existence, than to count up the species which haunt, either habitually or occasionally, one of these willow-galls, and live either upon the substance of the gall itself or upon the bodies of others insects that live upon the substance of the gall. In the single gall, *Salicis brassicoides*, *n. sp.*, there

dwells the *Cecidomyia* which is the maker of the gall—four inquilinous *Cecidomyiæ*—an inquilinous sawfly—five distinct species of Micro-Lepidoptera, some feeding on the external leaves of the gall, and some burrowing into the heart of the cabbage, but scarcely ever penetrating into the central cell so as to destroy the larva that provides them with food and lodging—two or three Coleoptera—a *Psocus* (Pseudo-Neuroptera)—a Heteropterous insect found abundantly in several other willow-galls—an *Aphis*, which is also found on the leaves of the willow, but particularly affects this gall—and, preying on the *Aphides*, the larva of a *Chrysopa* (Neuroptera) and the larva of a *Syrphide* (Diptera)—besides four or five species of Chalcididæ, one Braconide *Ichneumon*, and one Tachinidæ, which prey upon the *Cecidomyiæ* and the Micro-Lepidoptera; making altogether about two dozen distinct species, and representing every one of the eight Orders, if, with Sieboldt, Erichson and Hagen, we refer Pseudo-Neuroptera to Orthoptera."

Referring to the alleged discovery of Wagner, that the larvæ of *Cecidomyia* breed young ones,—that a second generation of larvæ is developed within the bodies of the first,—the author expresses his firm belief that the young larvæ which crept out of the bodies of *Cecidomyia* larvæ were nothing but larvæ of Chalcididæ or Proctotrupidæ, several species of which he knew from experience to breed inside the bodies of larvæ of willow *Cecidomyiæ*. As to Wagner's statement that the same newly-born larvæ went through the same process a second time, he believes it to be a pure and simple delusion.

[It became my duty to expose this "simple delusion" at p. 56 of the 'Entomologist'; and Professor Westwood, in alluding to this exposure, condemns it, at p. 9256 of the 'Zoologist,' as "dogmatic." The term may be a correct one, but the course taken by me on that occasion is also correct: no Editor who sees an assertion made contrary to our experience, and *totally unsupported by proof*, ought to pass it over in silence: and a Professor of any Physical Science, in a leading University, should be very cautious in giving a "simple delusion" even the semblance of support.—*Edward Newman.*]

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THE ENTOMOLOGIST.

No. 17.]

JULY 15, MDCCCLXV.

[PRICE 6D.

Life-history of Melitaea Athalia. — The eggs are laid in July, on *Plantago lanceolata* (narrow-leaved plantain), *Plantago major* (broad-leaved plantain), *Teucrium Scorodonia*, and *Veronica Chamædrys*; and the larvæ, emerging in about fourteen days, hibernate early at the roots of these plants: at the end of April they reascend the plants, feeding more copiously than in the autumn, and, crawling up any elevated object, they may be found resting in the full blaze of the meridian sun, which they appear particularly to enjoy: I kept my specimens on a plant of *Plantago lanceolata*, and covered with a bell-glass; in the middle of the day I always found they crawled up the flowering-stems of the plantain, and I was particularly struck with the resemblance of the larvæ to the flowers of this plant, a resemblance which perhaps serves as a protection against the birds at this period of the year, constantly on the look-out for caterpillars where-with to feed their young. Head semiporrect, fully as wide as the 2nd segment, scabrous and bristly: 2nd segment dorsally scabrous and bristly, and having two conical spines on each side, the spines being armed with bristles; 3rd and 4th segments each with eight conical spines, two small and slender on each side close to the leg, the others stouter and nearer the back; the following segments, from the 5th to the 11th, both inclusive, each with nine conical spines, one of them being medio-dorsal; the 12th segment has two medio-dorsal spines placed longitudinally, and three others on each side; the 13th has four spines, forming an irregular quadrangle and pointing backwards: all of these conical spines are closely beset with short stiff bristles. Colour of the head black, the scabrous points white: dorsal surface of the body velvety black, irrorated with snow-white dots; the spines in the medio-dorsal series are pale orange at the base and white at the tip; those of the next series on each side are deeper orange at the base and white at the tip; all the

others are pure white, but the bristles of the spines are black : legs pitchy black : belly and claspers smoke-coloured, indistinctly tinged with pink. My specimens changed on the 22nd of May to very short and obese pupæ, the head being transversely produced in front and broadly truncate, the base of each wing-case also slightly produced ; the abdomen very convex, its anal extremity bent under towards the extremity of the wing-cases, and the dorsal outline being almost semi-circular, the anal extremity attached by caudal hooks to a slight web spun by the larva on the edge of the plantain-leaf. Colour creamy white, variegated with black and orange ; cases of the legs adorned with black markings only ; dorsum of thorax with two conspicuous black markings, margined with orange ; the eight abdominal segments have each a basal dorsal band, alternately orange and black, and very ornamental : anal segment orange. This species remains in the pupa state three weeks, the perfect insect appearing on the wing in June ; it is extremely local, but abundant where found : it frequents open places in woods, particularly where the herbage is stunted and where heath occurs : Mr. Tress Beale observes that it is fond of basking on thistles, and that when taken it feigns death, falling into the collector's net in an apparently inanimate state, closing its wings and contracting its legs. I am indebted to Mr. Bignall for a liberal supply of this local larva, which appears to be hitherto unknown to British Entomologists.—*Edward Newman.*

Life-history of Satyrus Janira.—The females deposit their eggs on various species of Gramineæ, and, from the willingness exhibited by the larvæ in confinement to eat any grasses provided for them, I conclude that little choice is displayed in the selection of species : the period of oviposition extends over seven or eight weeks, commencing about the third week in June, and ending about the middle of August, during the whole of which period I have observed the females busily engaged in this occupation. The young larva emerges in twelve days, and feeds sparingly, after the manner of infant larvæ, until the first moult ; as soon as this is accomplished it retires towards the surface of the ground, and hibernates at the roots of the herbage. In May it reappears, and may then be found by examining the mowing grass near the surface of the ground. It is usually full-fed

by the beginning of June, and then rests in a tolerably straight position, generally towards the base of a blade of grass, but when disturbed falls from its food-plant, and rolls itself in a tight, but not very compact, ring, the anal extremity protruding in rather a marked manner over the head: in this attitude it will remain for hours perfectly motionless. Head rather broader than the 2nd segment, prone: body obese, somewhat fusiform, tapering from the 6th to the 13th segment, which terminates in two parallel points above the anal aperture and directed backwards; surface of the skin rough, almost like shagreen, the roughness caused by minute warts; segmental divisions not well marked, except when the larva is rolled up; each segment is transversely divided into sections, which are also obscurely indicated; the sides are slightly dilated; the surface throughout is pretty thickly covered with arcuate hairs directed backwards. Colour of the head and body opaque apple-green, with a medio-dorsal darker stripe, indicating the position of the alimentary canal, and probably partially due to the presence of food therein: lateral dilatation surmounted with a narrow pale stripe, almost white; anal points dirty white, tinged with brown: hairs white. Three specimens changed to pupæ on the 18th, 24th and 29th of May respectively: head of the pupa obtusely eared, the ears distant and short; thorax dorsally keeled, the keel slender and entire; shoulders of the wing-cases produced into an obtuse tooth: in two instances the larva-skin remained, enveloping the anal extremity, so that the pupa could not be suspended; in the third it hung for a time from a blade of grass, the skin still enveloping the anal extremity, but attached by silken threads to the grass. Colour of the pupa pale apple-green, freckled with whitish or yellowish green, and adorned with purple-black markings, of which the more conspicuous are—*first*, two dorsal series, commencing behind the head, passing on each side of the thoracic keel, broken into spots on the 4th, 7th, 8th and 9th segments, and continuous on the remainder; *secondly*, a series passing over the ears, and occupying the dorsal margin of the wing-cases; *thirdly*, an angulated longitudinal stripe on the wing-cases, dividing them into two nearly equal parts; *fourthly*, a shorter stripe nearer the tip of the wing-cases; and *fifthly*, the cases of the fore and middle legs.

The first perfect butterfly appears on the 21st of June. I am indebted to Mr. Pristo for a supply of this larva, which is little known, although the imago is so familiar to Entomologists.—*Edward Newman.*

Life-history of Pæcilocampa Populi.—The imago from which the eggs were procured emerged on the 19th of November. Eggs to the number of 101 were deposited on several subsequent days up to December 1st, and the imago died when it had finished ovipositing. The eggs were hatched on the 19th of April, and the young larvæ began to feed immediately on oak and poplar. They changed their skin, as far as I could see, but once up till the 6th of May, when a second change took place. At twenty days' old they were grayish, just as if sprinkled over with the dust of bran. Marks indistinct, with a reddish flame on each side of the 6th segment, very pale, and which seemed to die away in a few days. The young larvæ now clung by their claspers to the stem of the food-plant; when one moved, the others usually followed, and appeared to keep close together. On the 16th of May a third change took place, when two conspicuous red spots appeared on the 2nd segment. The long white fringe hanging over and along each side, together with four large black spots on the belly, were clearly defined. The belly itself quite flat. A fourth change took place on the 23rd of May, and the larvæ spun up on June 2nd, 3rd and 4th, when about twelve to fourteen lines in length.—
[Rev.] *E. Hallett Todd.*

Life-history of Boarmia perfumaria.—The eggs are laid in July, in clusters of four or five, on the under side of the leaves of *Hedera Helix* (ivy), more especially—indeed, so far as I have ascertained, exclusively—on that large form of ivy so common in our gardens, and known as Irish ivy: the young larvæ emerge in from ten to fourteen days, according to the temperature, and during the first week feed on the under skin and parenchyma of the leaf, not perforating the leaf, and thus they are kept constantly dry: the female selects for oviposition leaves of the current year which have a soft and juicy character, very different from that of last year's leaves; these, though still *in situ*, and exhibiting scarcely any symptoms of decay, are rigid and tough: after the expiration of the first week, or ten days at the farthest,

the young larvæ nibble small holes, either in the disk or at the margin of the leaf, but make small progress during the autumn ; long before winter they retire deep into the recesses of the ivy, spin a silken film on the surface of the twigs or stems, fixing themselves thereto by means of their claspers, and adhering with marvellous tenacity during the entire winter ; they exhibit no desire to venture prematurely from their retreat on the approach of spring, but at the end of April, and throughout May, feed with great moderation on the ivy-leaves that have endured the winter's cold. Whether this very common London insect feeds on any other plant than the ivy in a state of nature I cannot say ; it has certainly not been found by Entomologists on any other, and it as certainly refuses every other food when offered it in confinement, and is consequently starved to death if ivy cannot be obtained. When full-fed, which is usually at the beginning of June, it rests in a very straight, stiff, and peculiarly stick-like position ; the claspers are frequently attached to one leaf-stalk, and the legs holding another or perhaps the edge of another leaf, the body forming a perfectly straight bridge connecting the two : when annoyed by a sharp concussion of its food-plant it relinquishes its hold, and falls half-way to the ground, hanging by a thread, and, if the shaking or any other annoyance is continued, it falls to the ground, still remaining perfectly straight and rigid, and feigning death, the legs crowded together close to the mouth ; in this state I have known it remain motionless for hours. Head with the face flat, the crown conspicuously notched : body long and slender, with an obvious lateral skinfold, in which are situated the spiracles, but there are no humps or warts, although the skinfold is somewhat more conspicuously raised on each side of the 6th segment than on either of the others. Colour of the head in front very dark brown, the labrum being paler and reticulated with darker lines ; exactly where the flat facial region and the notched epicranial region meet, are two pale, obscurely lunulate markings, which have the appearance of eyebrows ; and there is also a pale line between the two lateral plates where they unite on the epicranium : body dark umber-brown, varied here and there with other shades, but these are always inconspicuous and imperfectly defined ; these shades are longitudinal and waved ; there are

four black dots forming a quadrangle on the back of each segment; spiracles minute and inconspicuous, ochreous, encircled by black, and again by a pale area: the ventral surface has a median, clearly-defined, pale stripe, commencing on the 5th segment and terminating at the abdominal claspers; this ventral stripe is triple, pale gray, almost white, at the sides, and somewhat darker in the middle, the very pale margins being rendered more conspicuous by their contact with a brown ground colour, rather darker than the back; this medio-ventral stripe is repeated in a very obscure and indistinct manner at a short distance on each side, reminding one of the second rainbow so often seen accompanying the first; the ventral surface between the ventral and anal claspers is uniformly pale: legs and claspers of the same obscure brown as the body: the larvæ bred from the egg in confinement are usually paler than those found on the ivy in a state of nature. When full-fed the larva buries itself in the earth just beneath the surface, and changes to a smooth brown pupa, rather attenuated at the anal extremity, where it terminates in two very acute points. The perfect insect appears in July. This description of the larva and pupa was written in 1862, verified in 1863 and again in 1864, Mr. Wright having every year most kindly supplied me with specimens: the species appears local, neither the larva nor perfect insect having been observed by Entomologists, except in the immediate neighbourhood of London. The perfect insect is the *Alcis rhomboidaria* of Stephens (Ill. Haust. iii. p. 187), and figured in Wood's 'Index,' No. 511: it is also the *Boarmia rhomboidaria*, *var. A.* of Guenée (Sp. Gen. des Lépidoptères, ix. 241), who thus distinguishes it from the normal form of *B. rhomboidaria*:—" *Un peu plus grande. Teinte des ailes plus cendrée, conice, nullement jaunâtre. Ailes supérieures plus aiguës et plus prolongées au sommet. Antennes à lames moins couchées l'une sur l'autre et peut-être plus longues.*" Mr. Stainton's translation of Guenée's description of the larva of *B. rhomboidaria* ('Manual,' ii. 26) is added, with the view of assisting Entomologists in forming an opinion as to the distinctness or otherwise of *B. perfumaria*:—" Larva yellowish or brownish gray, sometimes with traces of darker dorsal lozenges: 6th segment with a slight lateral protuberance below the pale grayish yellow spiracular line."

Mr. Stainton's description of *B. rhomboidaria*, so far as I understand it, applies to *B. perfumaria*, no notice being taken of the golden irroration (*jaundâtre* of Guenée) which distinguishes *B. rhomboidaria* of Kléem, Guenée and others.—

Edward Newman.

Life-history of Tæniocampa miniosa. — The impregnated female performs the duties of oviposition during the first week in April, and sometimes even at the end of March; she settles on a twig of *Quercus Robur* (oak), and deposits from sixteen to twenty-five eggs in a cluster just below the leaf-bud, and of course before there is any symptom of vernal vitality. The young larvæ do not emerge for a month or more, and then unite their labours in constructing a silken web, completely enclosing the terminal twig, and residing constantly beneath the shelter of their tent; as soon as the oak-buds are sufficiently expanded to afford an abundant supply of food, a period of from ten or twelve to twenty days, according to the temperature, the larvæ separate and distribute themselves over the food-plant: they usually select the lower branches or frequently the shrub-like oaks in hedges, and from these they wander to bushes of *Crataegus Oxyacantha* (whitethorn), and even to the low herbaceous plants in the hedge-rows and on the hedge-banks: after the social or gregarious propensity of these larvæ has left them, and their solitary walk through life has begun, they feed greedily and increase in stature very rapidly; sometimes the social life endures for ten days, and the solitary life for ten more; in other instances the larval existence is limited to sixteen days or extended to twenty-six: the full-fed larva rests in a straight position, but falls from its food-plant if annoyed, forming a loose ring, with the head on one side. Head rather narrower than the body, which is almost uniformly cylindrical, the anal claspers projecting behind and spreading. Head lead-coloured, with black blotches: body variegated; a bright yellow medio-dorsal stripe extends the entire length; this is irregular in breadth, and interrupted at the incisions of the segments: on each side of this medio-dorsal stripe is a broad lead-coloured space, often tinged with pink, and always irrorated and variegated with intense velvety black; this is bounded below by a narrow and interrupted pale yellow stripe, and this again by a narrow space or stripe

intense velvety black ; then follows a pale stripe, which includes the spiracles ; this is varied with yellow and white, and spotted with black ; ventral surface, legs and claspers smoky pink, irrorated with black. On the 31st of May these larvæ, for which I am indebted to Mr. Bignall, descended from their food-plant, and changed to smooth and pale brown pupæ beneath the dried leaves on the surface of the breeding-cage : another supply, for which I am indebted to Mr. Mawson, were received exactly a fortnight later, and underwent pupation in precisely the same way on the 14th, 15th and 16th of June.—*Edward Newman.*

Description of the Egg and Larva of Tortrix ministrana.—Eggs laid June 10th, 1864 ; round, plano-convex, one-twenty-fourth of an inch in diameter, of the colour of bees-wax ; laid in irregular clusters, their edges frequently imbricated, their upper surfaces marked with minute impressed points : as they approach maturity their upper surfaces become much more convex, and marked with irregular cracks or creases, like those on the back of the hand : about the 9th day the position of the young larva is indicated by the circumference of the egg being greenish, the centre maintaining its original yellowish brown colour : about the 16th day there appears a large black spot in each egg, indicating the position of the head of the larva : when hatched the integument remains as a white film ; this occurs in about eighteen days. Larva hatched June 28th, 1864 ; yellow ; head flattened, jet-black, shining ; shield yellow, shining ; true legs concolorous with the body, shining ; bristles long and stiff ; it has about five short, straight, closely-set anal bristles, set like the teeth of a comb : the habit of the larva at this stage is to get between two leaves of the food-plant (hazel), slightly attaching them by silken threads, and eating away the parenchyma : when disturbed they wriggle and hop by a thread. July 8th. Its only change appears to be in the colour being yellowish green and the body being of an equal width with the head. July 28th. One month old ; green, with a rather broad pinkish dorsal vessel. August 11th. The larvæ are now about five lines in length, of a translucent sea-green colour, the viscera rendering it darker on the back, with long scattered bristles ; head jet-black, shining, somewhat rugose ; labrum chesnut ; shield green, shining, showing

the hinder edge of the bilobed head through its substance ; legs concolorous with the body. Aug. 17th. Heads of the larvæ dark brown or chesnut : they spin white webs upon the surface of the leaves under which they live. Sept. 28th. About $10\frac{1}{2}$ lines in length ; green, with a very transparent skin, through which the yellowish dorsal vessel is plainly seen ; the segments are divided by a white line ; head in shape and colour very like a chesnut ; labrum chesnut, with a white base ; legs concolorous with the body : they commenced to hibernate about the first week in October. — *John Peers* ; 64, Buttermarket Street, Warrington, June 15. [Please say what is the food-plant.]

Entomological Notes and Captures.

163. *Abundance and Disappearance of Vanessa Urticæ.* — I cannot understand the sudden disappearance of *Vanessa Urticæ*. They were more numerous last week than I ever before saw them. I believe I could have taken a dozen at once in the net off the privet-flowers, and now they are nearly all gone. I have only seen two or three this week. It is a very curious circumstance if they have retired for the winter. — *Henry Doubleday* ; Epping, June 30, 1865.

164. *Acherontia Atropos in Ireland.* — I forward you a note of the capture of a very fine specimen of *Acherontia Atropos*, which I have in my possession, taken on the 3rd of June, in a chalk-pit at the end of the village of Glenarm. — *Thomas Brunton* ; Glenarm Castle, Larne, Co. Antrim, Ireland, June 6, 1865.

165. *Acronycta Myricæ, &c., in Ireland.* — I captured at sugar, last night, a fine specimen of *Acronycta Myricæ*, and during the week *Hadena contigua*, *H. Pisi* and *H. Chenopodii*. We also have *Chortobius Davus* in great numbers, and *Hypena crassalis* not uncommon. — *W. G. Battersby* ; Carragh Lodge, Carra Post-office, Killarney, Co. Kerry.

166. *Death of Larvæ in a State of Nature.* — I have observed several Lepidopterous larvæ in the Hackney Marshes, attached to culms of various grasses and quite dead : can you explain this phenomenon ? — *Harland Coulter* ; Lecturer on Botany at Charing Cross Hospital.

167. *Abundance of certain Coleoptera in Switzerland.*—From a letter received this week, from my valued friend and correspondent, Mr. H. Knecht, of Basle, Switzerland (who has been exploring, for several years back, the insect-fauna of his district, with great zeal and much success), I gather the following facts, which I think likely to interest English Coleopterologists to a certain extent, as some of the species of beetles mentioned hereafter occur also in this country. My friend writes to me that within the last four weeks he has taken over 150 specimens of *Copris lunaris*, *L.*, male and female, and over 50 *Sisyphus Schäfferi*, *L.*, male and female, besides a large number of examples of allied genera, as *Onthophagus*, *Oniticellus* and *Aphodius*, as well as about a dozen of *Geotrupes Typhœus*, *L.*, both sexes. These numerous captures would imply nothing more than that this group must be abundantly represented in the neighbourhood of the said town, were it not for the circumstance that for thirty years back there exists no published record of the occurrence of *Copris lunaris*, *Sisyphus Schäfferi*, or *Geotrupes Typhœus*, not even solitary specimens; whilst the nearest spot to Basle where *Copris lunaris*, for instance, has now been taken in abundance, has always been a favourite locality for Coleoptera, and receives therefore frequent visits from collectors. The last reliable record of the occurrence of *Copris lunaris* near the above-mentioned town dates from the year 1811, when this species was tolerably common; whilst in 1809 and 1810 it was very scarce (Merian, in 'Heer, Kaefer der Schweiz,' 1841, Pl. p. 53). With regard to *Geotrupes Typhœus* and *Sisyphus Schäfferi*, Dr. Imhoff and other observers tell us, in the same publication (*loc. cit.* p. 52 and 54), that they were then (1841) scarce, since which year we were obliged to consider them as an occurrence of the past, as nobody took them in their old haunts, till the present spring produced them in such startling numbers. *Copris lunaris* and *Geotrupes Typhœus* are two well-known indigenous species of this country; and if by chance they or others of the dung-frequenting Scarabæidæ have been noticed in unusual numbers this season, I shall feel obliged to any one contributing a few lines on the subject to the 'Entomologist.'—Albert Müller; 2, Camden Villas, Jasmine Grove, Penge, S.E., May 27, 1865.

168. *Galls produced by various Species of Cynips, &c.*—In the Proceedings of the Entomological Society (Entom. 240) I was much interested in Mr. Stainton's remarks on Mr. Walsh's paper on galls, and insects producing them, as described in the 'Proceedings of the Entomological Society of Philadelphia' for 1864. I have for many years been an observer of the curious excrescences found on trees and plants, known as galls. Having collected most of the British and some American ones, during a visit to that country a few years ago, I am preparing for publication a volume containing illustrations, with some attempt at a classification of them. Being desirous of making this work as complete as possible, I shall include a coloured drawing and a description of every known gall, as far as my own observation extends, as well as of those described by others. I would suggest that your readers should furnish, through your pages, any information as to galls not hitherto known or described, either found in our own country or elsewhere; or, if not thought of sufficient importance or interest to occupy your space, I should be glad of any communications direct. I may say that I much want a specimen, to draw from, of the leafy gall found on *Genista tinctoria*, which I have seen described, but never met with; also the cottony gall of the oak.—*Wilson Armistead; Virginia House, Leeds, June 15.*

[I shall be extremely pleased to promote the completion of Mr. Armistead's work in any way that I can, and shall feel personally obliged for any assistance that my readers can give that gentleman, either by direct communication or through the 'Entomologist' or 'Zoologist.'—*Edward Newmann.*]

169. *Mr. Doubleday's Supplement.*—I was very glad indeed to have Mr. Doubleday's Supplement to his List of British Lepidoptera, in No. 14 of the 'Entomologist'; but there still remains *a want* to be supplied. We have the list for labelling cabinets, but nothing to guide us as to *the place* in each genus which each new species is to fill. Again, I must confess my ignorance as to what is *Erebia Epiphron*: is it our old friend *Cassiope*? And is the well-known *Blandina* now to take the name of *Medea*? If Mr. Doubleday would kindly favour Entomologists with a few notes to help us to arrange the new species in our cabinets, I, for one,

would be very thankful.—[Rev.] *Henry Burney* : *Wavenden Rectory* : *Woburn, June 9, 1865.*

[Will Mr. Doubleday kindly reply? If Mr. Burney will turn to page 166 of the 'Entomologist,' he will find answers anticipating the questions about Epiphron and Medea. Epiphron has a priority of ten and Medea of seventeen years over their synonyms Cassiope and Blandina.—*E. Newman.*]

170. *Agamogenesis*.—Referring to my memorandum at p. 28 of the 'Entomologist,' I have to state that the larvæ of *Nyssia pilosaria*, which I then described as having been produced from a virgin female, acquired the full larval stature of the species, and in due time became pupæ: but here ends their history; they have exhibited no indication of life since pupation: the experiment has therefore failed as an instance of continuous agamous generation.—*Edward Newman.*

171. *Chortobius Typhon* and *C. Davus*.—At page 232 of the 'Entomologist' I have shown that Mr. Wilson reopens the question as to the distinctness of these supposed species, and observes, "All that I have seen of *C. Typhon* differ from *C. Davus* in having the white streak on the under side of the fore wings far more oblique and directed towards the anal angle; while in all the specimens of *C. Davus* I have seen it is directed towards the inner margin at some distance from the angle." Mr. Wilson having most kindly sent specimens to London, in illustration of this supposed new diagnostic, I have had the pleasure and the advantage of giving them a critical examination, and find no *natural* difference whatever between the two supposed species, the difference pointed out by Mr. Wilson being due entirely to the different manner in which the specimens are set. Neither of Mr. Wilson's specimens exhibits any approach to the *Papilio Davus* of Haworth, which is identical with the *Rothliebii* of Staudinger's and Doubleday's Catalogues, and which is the Manchester form of the species, and, to the best of my belief, not taken in Scotland (or Ireland).—*Id.*

172. *Apiarian Intelligence*.—I send you the following, thinking it may be worthy of a corner in the 'Entomologist.' Mr. Kentish, postmaster of this place, had a swarm of bees on Friday last, a few minutes before seven in the morning. While giving you the above information, perhaps the following may prove of interest to apiarians:—Having occasion to

remove from Hockley, in Essex, to Lilley, in Hertfordshire, and wishing my six stocks of bees to accompany me, I determined upon conveying them from one place to the other; for this purpose I selected one of the coldest days in February (the 16th). The stocks were all packed on the previous day, the boxes being tightly secured by cord to the boards on which they stood. The commencement of their journey was over eight miles of pretty good road, from the point of departure to the rail at Southend. This portion was accomplished in a light cart, two boxes being swung on the axle, two from the tail-board of the cart, and two hung on a stake resting on the sides of the cart mid-way between the seat and the tail-board. In this way they reached Southend quite safely. In the train they travelled on the floor of the luggage-van. On their arrival in London, at the Fenchurch Street Station, they were transferred to a cab, which conveyed them, at a foot pace, to the Farringdon Street Station, where they were again transferred to the floor of the luggage-van, being changed at King's Cross and at Hatfield. At Luton they were again packed in a light cart, as at the commencement of their journey, and conveyed to their future home in the garden of Lilley Rectory, over four miles of a rather rough road. The journey commenced at six o'clock, A.M., and they were safely placed in their new position about half-past one. The only injury received was the fracture of two combs in one of the boxes, occasioned by the rough road from Luton to Lilley.—[Rev.] P. H. Jennings; *Lilley Rectory, Luton, June 12, 1865.*

173. *Dianthœcia capsophila* bred.—I have bred a fine series from larvæ collected last August, and also taken the insect at Howth, in the three stages of larva, pupa and imago, during the first week of the present month.—*Edwin Birchall; 10, Chester Street, Bradford, June 21, 1861.*

174. *Dianthœcia Barrettii* again taken.—I had the pleasure of capturing a pair of this fine insect on the 10th of June, at Howth, the female hovering over the flowers of *Silene maritima* at dusk, the male at rest on a rock, freshly emerged from the pupa and in the finest possible condition.—*Id.*

175. *Larvæ of Lithosia caniola*.—The larvæ were abundant at Howth, from the 10th to the 15th of June, on *Lotus*

corniculatus ; during the day they may be found stretched at length on the stones and rocks, generally hidden by a tuft of Lotus ; about sunset they ascend the stems of the Lotus to feed, giving a decided preference to the flowers of *L. corniculatus*. Although I observed them constantly stretched on lichen-covered rocks, and watched them long and closely, I could not detect them eating the lichen. If the Irish insect is identical with the exclusively lichen-feeding *L. caniola* of the continent, the divergence of taste in the matter of food is very remarkable.—*Edwin Birchall.*

176. *Lepidoptera at Howth*.—My captures of Lepidoptera in the perfect state were but few, but perhaps the following may be worth naming :—*Eupithecia venosata*, *E. subumbra*, *Sericoris littorana*, *Eupœcilia albicapitana*, *E. angustana*, *E. dubitana*, *Gelechia leucomelanella*, *Plutella annulatella*. The cases of *Fumea nitidella* were in the utmost profusion on the rocks along the shore. Sugar I did not try. The coastguard will not permit a light to be exhibited on the cliffs, and, after numerous experiments made on their forbearance in past years, an Entomologist now risks his personal liberty by lighting up.—*Id.*

177. *Mamestra albicolon on the Lancashire Coast*.—This insect was very abundant on the Lancashire coast the early part of this month, and I shall be glad to send sets to any of my correspondents who may wish for them. *Gelechia longicornis* is common on the hills about here at the end of May, frequenting patches of burnt heather.—*Id.*

Entomological Society.

June 5, 1865. — The Rev. Hamlet Clark exhibited, and distributed amongst the Members, specimens of a beetle from British Kaffraria, which appeared to be an entirely new form of *Parnides*. The captor, Mr. J. H. Bowker, of the Mounted Frontier Police, sent the following note respecting them :— “ Water beetles, very like Spanish flies, very numerous in the Sunn (?) River ; their habits are curious ; whirling on a sunny day over the edge of the fall, they then make a sudden dive through the fallen water, and fasten to the face of the rock ; they resemble in this way a flock of sea-birds when feeding.

I never saw them at any other spot." Mr. Clark stated that the insect approached most nearly to *Machronymchus* (Müller, Illig. Mag.), a genus of Elmidae, but differed therefrom in the form of the head, the number of joints of the antennae, &c. ; its strong and broad claws and elongated robust legs would serve admirably to secure the beetle to the face of a rock, but it was not very evident how its legs were adapted for swimming.

The Rev. Hamlet Clark read extracts from a letter recently received from Mr. Edwyn Reed from Bahia; want of knowledge of the language had prevented Mr. Reed from going up the country as soon as he had desired ; he was proposing to spend May in Valença, and about June to proceed into the interior to the residence of a hospitable timber-merchant on the borders of the primæval forest. His first collection of objects of Natural History might very shortly be expected in London.

Mr. Janson read a letter from Mr. J. A. Brewer, dated Fayal, April 24, 1865, reporting the capture of about 150 species of Coleoptera at St. Michael's, by working as in England in winter ; there were no insects moving about, it being still (though very warm) the winter of the Azores ; many of those captured were apparently well-known British species, whilst others were unknown to the writer ; the majority consisted of Carabidae and Staphylinidae, with some Curculionidae and a few Elateridae.

Mr. F. Smith exhibited a specimen of *Apate capucinus*, taken by his son Mr. Edgar Smith, in Bishop's Wood, on the 28th of April last, running over fallen timber (oak).

Mr. Bond exhibited a specimen of *Dianthœcia albimacula*, taken on the 8th of June, 1864, near Gosport.

Mr. Bond also exhibited a *Saturnia Polypheus* and its cocoon, and a large *Ophion* which had emerged from the same cocoon.

Mr. Stainton exhibited some galls on the leaves of an evergreen oak (probably *Quercus Ilex*), brought by Mr. Burney from Mentone.

Prof. Westwood mentioned that in the Burchell Collection, recently added to the Oxford Museum, were specimens of larvæ preserved in a dry state by a means capable of easy adoption ; the larvæ were simply placed under heavy weights,

so as to squeeze out all the intestinal matter, and then dried rapidly ; the shape was of course lost, the skins being as flat as the paper on which they were exhibited, but the colours were admirably preserved.

Mr. F. Smith exhibited various *Bombi*, in illustration of some criticisms upon Dr. Sichel's 'Essai Monographique sur le *Bombus montanus* et ses Variétés,' and expressed his dissent from the conclusion of the author, that the numerous forms of *Bombus* therein mentioned were not true species, but merely varieties of the *B. montanus* of St. Fargeau.

Prof. Westwood directed attention to an article in 'The Gardener's Chronicle' of the 3rd of June, 1865, by Mr. W. Carr, of Clayton Bridge Apiary, Newton Hall, Manchester, in which the writer gives a detailed account of his observations, showing that workers of the Ligurian bee produced perfectly developed males or drones, corroborating Mr. Stone's experience as to the occasional prolificness of worker wasps. The Professor also took occasion to remark upon the abundance of queen wasps during the present year, notwithstanding the disease and destruction of the previous autumn, as mentioned by Mr. Stone (Proceedings, January, 1865).

Mr. Stevens produced an extract from the 'Pall Mall Gazette' of the 31st of May, which stated that an exhibition of insects was about to be held in Paris. The exhibition is announced to open on the 15th of August, and will be held in the Palais de l'Industrie, under the auspices of the Central Society of Agriculture, the Minister of Agriculture and Public Works being the President of the Committee of Organization. The exhibition was to be divided into two categories ; the first to include (1) the producers of silk, (2) the producers of honey and wax, (3) the insects used in dyeing, (4) insects used for the table, and (5) insects used in medicine. The second category was to consist of all the insects that prove destructive to cereals, vineyards, orchards, forests and woods used for building purposes.

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[PRICE 6D.

Remarks on the Genus Ceuthorhynchus and its Allies.

By G. R. CROTCH, Esq.

THE careful revision and comparison which our Curculionidæ received at the hands of Mr. Walton are well known; unfortunately, however, his task was never completed, and the large group which at present occupies our attention was never thoroughly investigated. Schönherr himself, it is true, has not entirely avoided confusion in his descriptions of the species of this genus, insomuch that recent careful comparisons of his typical specimens have reduced the European list by no less than thirty-eight species. M. C. Brisout de Barnevile has during some time occupied himself with this interesting group, and is about to publish his work in the ensuing winter, when I hope to furnish a translation of those parts that more especially concern us. In the meantime a few preparatory remarks relative to some of our species may not be out of place, as I have been fortunately able, through the liberality of Dr. Power, to lay a nearly complete series of our English species before him. The genus, or, as it is more fairly regarded, sub-genus, *Ceuthorhynchidius*, *J. Duv.*—distinguished by having only six joints to the funiculus,—is well represented in this country. It has, however, very generally escaped notice that *C. Troglodytes*, *F.*, and *C. horridus*, *F.*, belong to this section, as well as *C. floralis* and its allies. No alteration in our nomenclature is here called for, except that the *C. Poweri*, *Rye* (Ent. Mo. Mag. i. 137), is identical with *C. pumilio*, *Gyll.*, *Schh.*, which is of course the older name. De Marseul has placed this species correctly in this sub-genus, in the second edition of his ‘Catalogue;’ but I cannot find that anyone else has noticed it. A specimen from Dr. Power’s collection, near *C. floralis*, but distinct, has been returned as *C. hepaticus*, *Schh.* Descriptions of this and some other new species will appear with the

general revision of the group. *C. Troglodytes* appears from M. Brisout's account to be rather a magazine of species: the very small form from our south coast, Folkestone, Isle of Wight, Weymouth, &c., known in this country as *pygmæus*, *Guyon*, had been received by him from the Rev. J. F. Dawson: he therefore intends to describe it as *C. Dawsoni*. Two other species which occur here will be described—*C. frontalis*, a small species, like *C. Dawsoni*; and *C. Chevrolatii*, at once known by its beautiful white variegated markings.

Among the true *Ceuthorhynchi* many changes must, unfortunately, be made. *C. inaffectatus* = *Rapæ*, *Gyll.*, *Schh.*, as Mr. Walton had previously suspected, the true *C. inaffectatus* being only *C. Syrites*, female. *C. uliginosus* has already been disposed of by Mr. Waterhouse, but, as if to add to the confusion, the Schönherrian type does not = *Cæliodes di-dymus*, as does Mr. Walton's. *C. Chrysanthemi* = *campes-tris*, *Hbst.*: from this species M. Brisout separates a smaller, differently marked form as *C. vicinus*. *C. melanostigma* = *rugulosus*, *Hbst.*, which removes the confusion between this and *C. melanostictus*, *Msh.*. *C. marginatus* has a species separated from it—*C. punctiger*, *Schh.* (Mr. Walton, however, unites them purposely, as does also M. Thomson in his recently published volume). *C. quercicola* = *versicolor*, *Bris. MSS.*, as far as my specimens are concerned; very possibly we have the true *quercicola*, *Fab.*, also. *C. biguttatus* = *verrucatus*, *Schh.*. *C. inornatus* I have already stated to equal *C. Alliariæ*, *Bris.*, a name having the precedence by about a year. In addition to these, I forwarded M. Brisout specimens of the species in our lists under manuscript names: these appear pretty generally to be known. *C. impressicollis*, *Little* = *angulosus*, *Germ.*, and is of very great rarity there as here. *C. Crux*, *Walt.*, is hitherto undescribed: M. Brisout has provisionally named it *C. Euphorbiæ*. *C. hispidulus*, *Stev.* = *pilosellus*, *Schh.*, a species from Spain and S. France. Besides these there remains one species of which I have one example from Gainsborough, taken by Mr. Wollaston, and Dr. Power has also a specimen: this appears to be the *nigroterminatus*, *Woll.* (Cat. Col. Mad. 1854), a determination in which Mr. Wollaston himself agrees, remarking only that it is a little less tessellated than the Madeiran

specimens: it is generally known on the continent as *C. mixtus*, *Muls.*, a name long posterior to Mr. Wollaston's.

In the allied genus *Cæliodes*, *C. exiguus*, *Oliv.*, is separated from *C. Geranii*, *Pk.*, which it certainly very closely resembles; and the *C. fuliginosus*, *Marsh.*, is regarded by M. Brisout not only as a good species, but as *the* species, the true *C. guttula* being very rare and of more northern distribution: the specimens sent by me were all returned as *C. fuliginosus*.

From this brief sketch it will be seen that much yet remains to be done in the collation of Faunas of different countries, so as to avoid the results of insulation, which would appear to be quite as active in inducing man to make species as it is said to be in Nature in producing the species themselves.

G. R. CROTCH.

University Library, Cambridge.

Some Remarks on the Genus Nothus of Olivier.

By G. R. CROTCH, Esq.

THE unique species composing this genus has been hitherto of considerable rarity in collections in this country; during, however, the last two years it has been brought me from Monk's Wood, Huntingdonshire, in comparative numbers, by a man who works there for Lepidoptera. This year I have also succeeded in finding a few myself, late in June, on the flowers of the whitethorn. They are singularly active when dislodged (though that is no easy matter), and fly almost immediately, but on dull days are, I believe, more quiet. Their resemblance to *Telephoridæ* is very striking, and, occurring among countless hosts of *T. rusticus* and *T. lividus*, it is by no means easy at first to distinguish them; indeed they have more characters than of mere resemblance in common. They seem to frequent old hedges outside the wood, but I have also taken them in the interior; and in early spring they were brought me from the blackthorn flowers: these examples ran smaller on the average, and were further remarkable for being almost entirely of the variety described by Stephens (Man. 338, 2648) as *N. an-cepis*, distinguished by having simple femora in both sexes;

a larger series, however, shows that it is not a defined variety, but a mere lack of development, as I have now every stage, from the perfectly simple to the immensely clavate thighs so characteristic of the large males. It is correlative with size in some degree, as all the small ones are less developed and below three lines; I have never seen one with thickened thighs. The variation in colour is very great; the males are typically leaden grey, having the thorax bordered with testaceous and with a central line of the same colour; but this line disappears, and the elytra along the external margin, or at the suture, or both, become testaceous, this colour occasionally even predominating; one variety which I have is very singular, with two round testaceous spots just within the apex. The females are of a reddish testaceous; the thorax with two black dots, which vary in extent and intensity. The size is remarkably inconstant; some of my smallest specimens do not exceed $2\frac{1}{2}$ lines, while the largest are from 6 to 7 lines: the males are fully equal to the females in length, but not in breadth. A careful description of its various varieties will be found in a paper by MM. Banse and Matz (Stett. Ent. Zeit. 162, 1841), where they describe it at great length. I have retained the generic name *Nothus* (Oliv. 1811), by which it is most known in this country, since, although it was called *Osphya* by Illiger in 1807, no characters were given; hence the name is not entitled to precedence. The species was originally described by Fabricius in 1775, under the name of *bipunctatus*, and from female specimens only: the male was made known by Olivier, and described as *clavipes*, and subsequently as *præustus* for both sexes; MM. Banse and Matz, Redtenbacher (F. A. 658) and Lacordaire (Gen. v. 562), consider that the latter name, as the first applicable to the species as a whole, should be retained. Where a species is first described from a variety, it would be absurd to transfer this name to the type; hence a later name may appear first,—as *Notophilus biguttatus*, *Fab.* (1781),—which, if the existence of varieties be only properly recognized, is of no importance. Here, however, there would not seem sufficient warrant for altering a long-established name. This insect is apparently scattered over much of the European continent, but its home is evidently in the eastern portions, it increasing in rarity as we

approach our shores ; in fact it is one of the very few really eastern types that we possess, nearly all the Russian and W. Prussian species disappearing before they arrive here.

G. R. CROTCH.

University Library, Cambridge.

Life-history of Arge Galathea. — The egg, which is pure white and almost spherical, but with a flattened base, is laid in August, generally about the second week, on several species of Gramineæ (grasses), and I am unable to find that any preference is shown : the young larva emerges in about three weeks [Entom. 148], and, after feeding for a short time, hibernates very early in the autumn, and while yet extremely small : it conceals itself towards the roots of the herbage, and very near the surface of the ground : it feeds again towards the end of April or beginning of May, and attains its full size by the end of that month. When full-fed, which usually occurs towards the end of May, it rests on a blade of grass in a nearly straight position, the back slightly raised, and the head slightly bent under ; if annoyed it falls to the ground in a curved posture, which can scarcely be called a ring, but lies motionless, feigning death until the prospect of immediate danger is past, when it slowly resumes its ordinary position, and reascends its food. Head of nearly the same width as the 2nd segment, beset with scabrous points which emit hairs : body obese, somewhat fusiform, increasing in size to the 5th segment, thence gradually diminishing to the anal extremity, which terminates in two parallel points above the anal flap, and directed backwards ; segmental divisions not strongly marked, each divided transversely into sections, which are also obscurely indicated ; the sides in the region of the spiracles are slightly, almost imperceptibly, dilated ; every part of the body beset, like the head, with scabrous points and short hairs, those of the head and 2nd segment slightly arcuate and bending forwards, those of the 3rd segment nearly straight and erect, those of the remaining segments arcuate and bending backwards. Colour of the head pale dingy green or pale reddish brown ; of the body paler dingy green or wainscot-brown, with a pretty clearly defined

narrow medio-dorsal darker stripe ; the dorsal area on each side of this dark stripe is very pale, and its exterior margin almost white ; a narrow sinuous reddish stripe intersects each division of this pale area ; lateral area pale ferruginous, intersected by a narrow whitish stripe below the spiracles, which are intensely black ; in addition to this principal broad lateral stripe, there are two other very inconspicuous stripes, the one above, the other below it ; all the stripes unite and terminate in the anal points, which are slightly tinged with pink ; ventral surface, legs and claspers pale ferruginous. On the 14th of June my larvæ left their food, and, lying at the bottom of the gallipot, underwent pupation two days subsequently, without attaching themselves in any way to the grass or other object ; in fact they seemed to make no preparation whatever for the change : the pupa is short and obese ; the head rounded and without any appearance of ears ; the thorax convex, but neither keeled nor angulated ; the ventral surface very gibbose, more so than the dorsal ; there is a prominent scale at the base of each wing-case, apparently covering the spiracle, and the 13th segment is attenuated, depressed, scale-like, and fringed with straight bristles, which appear an indication of inability to suspend itself. Colour pale wainscot-brown, partially transparent ; the scale at the base of the wing-cases and the caudal scale dark brown, almost black ; wing-cases delicately barred with transverse brown lines, very faint indeed, but slightly darker than the ground colour ; dorsal surface of the abdomen indistinctly striped with a darker shade. I am indebted to Mr. Pristo for a supply of the larva, which I have never happened to receive through any other channel. — *Edward Newman.*

Life-history of Eriogaster lanestris.—The eggs are laid in a spiral mass round a twig of *Crataegus Oxyacantha* (white-thorn), during the month of February, and completely concealed by the blackish or smoke-coloured down with which the end of the abdomen in the female is thickly clothed : some examples of this nidus exhibit a corkscrew form ; in others the rings are fused together, and the mass becomes amorphous. In April the young larvæ leave the egg-shell, and no sooner is the whitehorn clad with its first mantle of tender green, than they spin a web on the surface of the

leaves and twigs, and feed in company. As they increase in size this social propensity continues, and they not only feed in company, but when satisfied with a meal retire to a larger branch, and on the surface of this repose side by side in the most amicable and sociable manner, always, however, covering the surface of the substance on which they rest with a silken web, and occasionally concealing and protecting themselves beneath it: after the last moult this economy ceases, and the larvæ then feed alone. When quite full-fed the larva rests in a straight position, but on being annoyed raises the anterior extremity and tucks in the head, assuming a picturesque and somewhat Sphinx-like attitude, and if the annoyance be continued this attitude is aggravated, and the larva finally falls from its food-plant, forming a complete ring. Head scarcely narrower than the 2nd segment, sub-globose; body almost uniformly cylindrical, covered with silky hairs, a portion of which are very much longer than the rest. Colour of the head almost black; of the body intense velvety black, having on each side a narrow interrupted yellow-white stripe, which in each segment emits a branch towards the back at right angles with itself; on the 12th segment these branches nearly, and sometimes quite, unite on the back, and midway between each two branches is another aborted branch, sometimes reduced to a mere spot; the shorter hairs on the dorsal surface are rich sienna-brown, very bright and vivid, and disposed in two longitudinal series of subquadrate and nearly contiguous patches; the longer hairs are mostly on the sides, paler and tipped with gray; legs black and glabrous: ventral claspers red; anal claspers pitchy black; ventral surface smoke-coloured. When full-fed, which is towards the end of June, and sometimes as late as the middle of July, it forms a very compact and oblong cocoon, remarkably small for the size of the larva, and in this changes to a dark brown pupa, in which state it remains throughout the winter and until the following February, when the moth appears on the wing. I am indebted to Mr. Wright and Mr. Pristo for a bountiful supply of this beautiful and interesting larva.—*Edward Newman.*

Life-history of Bombyx neustria.—The eggs are laid in July, and sometimes as late as August, on the food-plant, forming a compact ring round the twigs; they are arranged

with the most perfect symmetry, and are united by a thick tenacious cement extruded by the female; this cement, like that made by plasterers, is not dissolved or disintegrated by wet, and retains the eggs, or at least the egg-shells, *in situ* for many years; each individual egg is pitted or depressed in the middle, and round this median depression is a raised ring, and then an annular depression; the young larvæ appear about the middle of April, sooner or later, according to the season; on emerging they leave the egg by an aperture made in the median depression: as soon as they escape from the egg-shell, all those that have issued from one mass of eggs unite in spinning a silken tent, enclosing a few leaves, on which they feed until entirely consumed; they then extend their dwelling, and enclose other leaves, which they consume in the same way; when about to change their skins they creep from under this tent, and, fixing themselves on the outside, there undergo the process of moulting, the old skins adhering to the roof of their dwelling: I have seen more than fifty of these left-off habiliments decorating the exterior of a single tent. After some weeks the larvæ separate and feed singly. In gardens this species feeds on apple, plum, and many other trees and shrubs, even sometimes on laurel; and in woods, on oaks, whitethorn, poplars, sallows, &c.; indeed it seems almost omnivorous: it is excessively destructive, not only stripping the trees of leaves, but leaving its unsightly webs spun over every branch. When full-fed it rests in a straight position, but falls off its food-plant if slightly shaken; it does not feign death, but immediately crawls towards the trunk of the tree whence it has fallen, and begins to reascend; it never rolls in a ring, but is of a limp and flaccid habit. Head semiporrect, quite as broad as the 2nd segment; body elongate, almost uniformly cylindrical, but having a conspicuous skinfold along the sides above the legs, and the 12th segment being transversely dorsally elevated; every part of the body emits longish hairs, but these are not sufficiently numerous to conceal the brilliant colours hereafter described. Head bluish lead-colour, with two very conspicuous spots on the forehead, which have a superficial but very striking resemblance to eyes; 2nd segment dull orange, with two dorsal subquadrate black spots; the rest of the body is beautifully striped; there is a narrow medio-dorsal

stripe, snowy white, bordered on each side with black; on each side of this is a broader orange stripe, intersected throughout its length with black, and also bordered with black; this is followed by a broad lateral stripe of a bluish lead-colour, and irrorated throughout with minute black dots; this broad stripe also includes four large black spots on the 3rd, 4th, 12th and 13th segments respectively, and is again followed by a narrow orange stripe bordered with black; below this is a narrower and very irregular lead-coloured stripe reticulated with black, and including the blackish spiracles; and below the spiracles is a faintly indicated and irregular orange stripe; ventral surface smoky plumbeous, variegated with black; legs black; claspers plumbeous, pale at the extremities; dorsal hairs mostly black, lateral hairs ferruginous. About the middle of June it either wanders away from its food-plant, and takes up its station on some fence, railing, tree-trunk, stone wall, or other durable object, or spins together the leaves of its food-plant; in either case it forms a cocoon composed of yellow silk, the outer portion loose and thin, the inner compact, oval, and much resembling the cocoon of the common silkworm: this cocoon is remarkable in containing a large amount of a dry yellow substance, a good deal resembling powdered sulphur; the object of this, or the source whence it comes, appears not to have been investigated. Within the cocoon the larva turns to a dark brown or black pupa, rather elongate in form, and having the 11th and 12th segments restricted; the pupa is clothed with short brown hairs, which are particularly dense at the two extremities. The moth appears on the wing in July. This species was formerly so abundant in the vicinity of London as to be a complete pest to the gardener, but it appears now to have left the district, and to have established itself in various places at a distance from the metropolis. In the Isle of Wight this year it has been particularly abundant, and Mr. Pristo, to whom I am indebted for a most liberal supply, has found it feeding, in its usual sociable gregarious manner, on the oak, a tree on which I have never observed it.—*Edward Newman.*

Entomological Notes and Captures.

178. *Captures at Monk's Wood, Huntingdonshire.* — The results of an occasional day's beating at Monk's Wood, for Nothus, though not productive, may yet have some little interest for your readers. I was unfortunately unable to give much time to it, and so doubtless missed many things; amongst others the great object of my hopes, *Rhynchites Bacchus*, *L.*, which was twice found there in years gone by: one of the specimens I now possess, and have repeatedly sent its original captor after it, but without success. He, however, astonished me by bringing from the blackthorn flowers, in April, some seven or eight specimens of *Brachytarsus varius* and *scabrosus*, in about equal numbers; I afterwards obtained a few by beating whitethorn, sweeping *Chærophylum* flowers, &c. *Mordella abdominalis*, *Fab.*, male and female, were not very rare on flowers of *Viburnum Lantana*, but the small *anisotomus* and *colons*, that I have generally found abundant about 4 P.M., seem to be very rare this year. *Tachyporus formosus*, *Matth.*, also was by no means abundant: I get this species by sweeping towards dusk; but by shaking moss, &c., I only find *T. Chrysomelinus* and *solutus*. *Orsodacna humeralis*, *Latr.*, I found two specimens of, and by continuous beating might doubtless have obtained more. The commoner inhabitants of the wood, including *Agapanthia lineatocollis*, were in plenty, and in a small stream I was delighted to find a series of *Heleophorus dorsalis*, *Marsh.* (4-signatus, *Bach.*), a species I had not before met with in nature. Probably most of the woods with which this region abounds would be equally prolific, if not indeed more so, this being annually cut and thinned unmercifully.—*G. R. Crotch; University Library, Cambridge.*

179. *Note on Anarta Myrtilli.* — This species is looked upon by some Entomologists as double-brooded, but this is not, I believe, the case, at least in the vicinity of London. I have taken the larva in abundance, by beating heath, during the autumn months. Of these the greater proportion entered the pupa state before the winter, a few which survived invariably dying with the commencement of severe weather. From these pupæ imagos emerge during the end of May and the first half of June. By beating again in April

and May I have taken larvæ, but in diminished numbers : these become pupæ in June, the imagos appearing during July. Hence it appears that there is but one brood of larvæ, part of which survive the winter, and pass but a few weeks in the pupa state. — *John R. S. Clifford* ; 21, *Robert Terrace, Chelsea*, July 12, 1865.

180. *Captures on the Birch-Wood Day*.—I have attended the annual gathering of the Entomological Club at Birch Wood for several years, and have, between breakfast and dinner, both in rain and sunshine (too often the former), worked the woods and hedgerows for the ancient rarities of the place, and generally with some success, though I have not succeeded in rediscovering *Apion lavigatum* or *Rhynchites Bacchus*. Never, however, did I meet with such a dearth of Coleoptera as on the last 5th of July. Common things were scarce, and rare ones were few indeed. The only insect of note which fell to my share was a single specimen of *Gymnetron rostellum*. *Dryophilus pusillus* was still lingering there, but in comparatively small numbers, beneath the fir trees, on whose dead branches it feeds ; but almost all were females ; I found only *one* male amongst some twenty of them. I think that it is not uncommon for the *later* specimens of beetles to be for the most part females. Last May, for the first time, I fell in with *Bruchus luteicornis* in considerable quantity in a field near Thames Ditton, and took some thirty specimens, of which only *two* were males. The week afterwards the insect had all but disappeared. At Birch Wood I also got *Gymnetron melanarius*, *Apion atomarium*, *pubescens* and *varipes*, *Malthinus frontalis*, *Chrysomela varians*, &c. Some Fungi afforded a few specimens of *Triphyllus punctatus* and common *Gyrophænas* ; and the nests of the black ants produced nothing but the ordinary *Myrmecionias*, with a single specimen of *M. lugens*. Such are the best Coleoptera I saw, and they are nothing to boast of. Hemiptera and Homoptera afforded me a rich harvest, and I was pleased to find a new locality for a beautiful bug, which has hitherto occurred only at Weybridge, running about amongst the ants : the male resembles one of the Microlepidoptera ; the apterous female can scarcely be distinguished from the ants themselves. — *John A. Power* ; 52, *Burton Crescent*, July 21, 1865.

181. *Captures on the Birch-Wood Day.* — The 5th of July, 1865, at Birch Wood, in the county of Kent, was a glorious English summer day ; it was a day never to be forgotten by those entomological brethren who there and then assembled to commemorate the establishment of the Entomological Club. This meeting is annual ; the day is spent in entomological rambles in the neighbourhood, and a social gathering at dinner takes place in the evening, when the labours of the day are over : such is the programme of this annual festival. There is one question which not only every member of the Club, but also every one who has fortunately been a guest, is continually putting to his brother Entomologists, "Have you ever dined at the Birch-Wood Dinner?" If you have never enjoyed one of these annual gatherings, you have yet to learn how kindly, how sociable, how brotherly Entomologists really are ; as a principle I take it all real naturalists must be so, but on these occasions this amiable sociability is so thoroughly pervading. Let me, then, mark this 5th of July, 1865, as an entomological "red-letter day," for on that day I saw alive, for the first time, that lovely Hymenopterous insect, *Hedychrum lucidulum* ; I captured twenty-five specimens ; they were prying about a bank in which the burrows of *Halicti* were very numerous, for upon these bees M. Wesmael tells us they are parasitic. Mr. Rye took a single example of *H. lucidulum* last year, but I do not recollect where. The second rarity that fell in my way was the very local bee, *Sphecodes subquadratus* : this species was in tolerable abundance, and both sexes in about equal numbers : I had not seen this insect alive during the last fifteen years. The last rarity I have to record the capture of is the little *Cerceris quinquefasciata*, the *C. interrupta* of Shuckard's 'Monograph of the Fossorial Hymenoptera' : the only other localities for this species with which I am acquainted are Southend and Lowestoft : this insect provisions its nest with species of Curculionidæ, selecting *Apion rufirostre*, *A. Malvæ* and *A. æneum*, all of which it finds on the common mallow. — *Frederick Smith ; British Museum, July 15, 1865.*

182. *Turner's Coleopterous Captures : a new Anobium.* — My friend Mr. Harper and myself have received from Charles Turner some notable Scotch rarities, including *Dendrophagus*

crenatus, *Brachonyx indigena*, and most of those formerly obtained by him ; but he has also sent us both sexes of *Pyrochroa pectinicornis* (of which, if I mistake not, only one British specimen was known, taken by Mr. Buxton) ; *Pissodes notatus*, of which there are, I think, two specimens in the British Museum, taken near Edinburgh ; and a fine new species of *Anobium*, which I will here record as

**ANOBIUM NIGRINUM, *Sturm.* (1837) and *Mulsant.*
(*Ernobius, Thoms.*)**

distinguished in his tabulation by having the thorax equal on the disk and not tuberculate, and the joints of the antennæ 5—8, contiguous, short and transverse. The species with punctate elytra and elongate slender tarsi form a genus, separated from *Anobium*, under the name *Leiozoum*, by MM. Mulsant and Ray in their *Essai Opus.* xiii. 92 (1863). The propriety of this step had, however, been previously pointed out by M. Thomson (*Sk. Col.* i. 88, 1859), and he has applied the name *Ernobius*, which must therefore be retained, if *Anobium* is to be split into two genera. The insect *could* only be mistaken for *Anobium molle*, *Abietis*, or *plumbeum*, of our British species. It is utterly unlike the first two in being dark-coloured, as well as in other respects ; and from the last in being more elongate, less glossy, having shorter and closer pubescence, the sides of the thorax much less emarginate behind, and the elytra finely granulated. Mulsant's description answers well :—“ Oblong-elongate, subcylindric, cinereo-pubescent, shining black. Palpi and tarsi reddish. Head and thorax finely and densely granulated. Elytra finely and roughly punctured. Thorax transverse, narrow in front, convex, subequal, finely channelled in the middle. All the angles obtuse and rounded. Elytra subparallel and rounded. Antennæ elongate. Tarsi slender. Length $2\frac{1}{2}$ lines.” Our specimens agree with one in Mr. Crotch's collection, which was in that of Mr. Wollaston : it is an old specimen, on a point of card, without date or locality, but named by him *Anobium nigrinum* years ago. There is a specimen of it in the European collection of the British Museum, under the name of *Anobium plumbeum*.—*John A. Power* ; 52, *Burton Crescent*, *July 21, 1855.*

Entomological Society.

July 3, 1865.—Mr. Bond exhibited *Eupithecia campanulata*, a species new to Britain, bred by the Rev. H. Harpur Crewe from larvæ found in a birch wood near Tring, Herts, feeding on the unripe seeds and seed-capsules of the nettle-leaved campanula (*C. Trachelium, Linn.*), in August, 1864. See Zool. 9260. The perfect insects emerged in June, 1865. Also *Eupithecia pulchellata*, bred at the end of May last from pupæ sent to him by Mr. C. S. Gregson, of Liverpool, who found the larvæ on the foxglove.

Mr. Bond also exhibited three specimens of *Toxocampa Craccæ*, bred from eggs sent by the Rev. E. Horton to Dr. Knaggs; the larvæ fed for the first day on *Lathyrus pratensis*, subsequently on *Orobus tuberosus*, and eventually had choice between the last-mentioned plant and *Vicia Sepium*, and fed freely and indifferently on either.

The Rev. Hamlet Clark read the following portion of a letter from Lieut. Hobson:—"I have caught an insect two inches long, and for the number and beauty of its lights I never saw anything to equal it, nor indeed has any European or native to whom I have shown it. The Lampyris in question is of a dirty pale orange-colour, and of the thickness of a goose-quill. It can contract or elongate itself at pleasure; has eleven segments or rings; with the exception of the first and last, is studded with a pair of lamps of more than emerald brightness; constituting in all eighteen lamps, nine on each side, each light being of the diameter of a small-sized goose-quill. The insect exhibits slight streaks of black on the dorsum of the first two segments, whilst the common Lampyris has well-marked black lines on the back of all its segments; its habit is sluggish, and it differs from the common variety in this respect. It would bury itself deep in the earth, rendered soft by a free sprinkling of water, and never show itself unless forced out for examination. The common Lampyris would shun the light of day; and at night, unlike its shy neighbour, would stealthily creep out of its hiding-place, and, with tail erect, open the window of its single lamp and shed forth a bright light all round. To examine the new insect it is necessary to touch it, and then it will curl itself up and impart the resemblance of a ring studded with 'jewelled lamps.'"

With reference to the discussion, at the May Meeting, on the alleged contemporaneous flashing of the light of fireflies, Mr. Clark read the following extract from a letter received from Mr. Alexander Fry :—“ I can confirm your observation that the fireflies of the genus *Aspisoma* of Castelnau flit at night in great numbers over low-lying damp fields, chiefly near water, emitting light by short flashes at intervals of three or four seconds, the majority keeping time with each other, as if in obedience to the *bâton* of a leader. I think it is only the fireflies of that genus which practise it. The numerous fireflies common in Mexico and North America belong chiefly to the genus *Ellychnia* and *Photuris*, whose habits are different, so far as I have had opportunity to observe their congeners in Brazil.”

Mr. W. F. Evans said that, in consequence of the late President, Mr. F. Smith, having called attention to Madame Merian’s statement respecting the emission of light by the lantern-fly, he had sent a copy of the President’s Address (of the 25th of January, 1864), and an outline drawing of *Fulgora laternaria* to his son, Mr. W. T. Evans, of the Commissariat, at present in British Honduras, with a request that he would endeavour to ascertain the fact: the following was an extract of a letter recently received from him :—“ Belize, 17th May, 1865.—I have succeeded in my entomological researches about the lantern-fly. I had one given to me (caught here) alive, and I myself saw it giving light. I kept it in a tumbler for about a day, and it sometimes did not give it, but at others it did. The ants have eaten off two of its legs. I must wait for a chance to send it home.”

The Rev. Douglas C. Timins communicated some “ Notes of a Month’s Collecting at Cannes.”

Dr. Armitage exhibited the case of a female *Oiketicus*, into the open end of which were simultaneously thrust the bodies of three males, manifestly with a view to copulation with the single female within. The specimens had been killed and were shown *in situ*; they were from Monte Video, and had been determined by Mr. F. Walker to be *Oiketicus Kirbyi*.

Mr. Dunning mentioned that, in the year 1850, when strolling in the vicinity of Storthes Hall, Huddersfield, in

company with Mr. Inchbald, they had found two males of *Micropteryx calthella* simultaneously in sexual contact with a single female: unfortunately neither gentleman had any entomological apparatus with him, and the specimens could not be secured; they were, however, carried for upwards of a mile on the dandelion-flower on which they were reposing, but after this interval the contact was discontinued, and the moths flew away. (See Zool. pp. 2501, 2830, 2858, as to this species frequenting the dandelion and other flowers).

Mr. Bates read a letter from Mr. B. D. Walsh, of Rock Island, Illinois, dated April 22, 1865, and with reference to Mr. Bates' paper on mimetic Lepidoptera.

In connexion with an account of the hibernating larva of *Limenitis Disippus*, Mr. Stainton referred to 'The Zoologist,' pp. 7563—5, where the history of the hibernation of the larva of the English species, *Limenitis Sibylla*, in the leaves of the honeysuckle, is given at length by Mr. Newman.

An extract of a letter addressed to Mr. F. Smith by Mr. S. Stone, of Brighampton, near Witney, dated April 29, 1865, relating to the wasps of that neighbourhood, was read.

The President exhibited some young dog-ticks, quite recently hatched from eggs laid in May by the identical female *Ixodes* which he had taken away from the February Meeting of the Society, and which he had mentioned at the March Meeting as having been re-captured when attempting to escape after having been gummed down to a card for a fortnight.

Erratum.—Page 225, line 9, for "1861" read "1865."

For Sale.—A solid Spanish Mahogany Insect Cabinet, containing forty-six drawers, fitted on Mr. Newman's principle, and surmounted by a glass book-case. The drawers contain a collection of many hundreds of well-set insects; also about seventy sorts of eggs, well blown, and collected by myself. The above are all British, and the authenticity of each specimen will be vouched for. Particulars on application.—*S. V. White; Richmond House, Reading.*

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[PRICE 6d.

Contributions to the Natural History of Australian Ants.

By BENJAMIN T. LOWNE, Esq., M.R.C.S. Eng.

I SPENT the months of September, October and November (the spring in the Southern Hemisphere), 1862, in New South Wales, and paid some attention to the natural history of ants: I made collections of thirty-three species in the vicinity of Sidney, eighteen of which, as far as I have been able to ascertain, were new.

The following is a list of the species I obtained, with notes from my journal on their habits, and descriptions of the new species.

I take the present opportunity of acknowledging the assistance I have received, in comparing and naming specimens, from Mr. F. Smith, who has always afforded me valuable information in my researches.

Genus FORMICA.

Section I.

1. *F. purpurea*, Sm. — This is by far the commonest ant in the neighbourhood of Sidney. The workers were received from Melbourne before my visit. I discovered *F. detecta*, Sm., to be the female of this species, an insect which Mr. Smith placed in the first section of the genus, because the anterior wings present a discoidal cell; whilst he has placed the workers, *F. purpurea*, in the second, owing to the absence of ocelli. I have preferred to place the insect by the affinities of the wings, believing them to be the more important characters. The males have not hitherto been described.

Male 4 lines long, bright violet. Antennæ, except their first joint, and tarsi ferruginous. The first pair of legs almost ferruginous. Head, thorax and legs covered with a black pubescence. Wings subhyaline, nervures rufo-fuscous.

Abdomen having a bright green tinge in certain lights, and covered with a short silky pile.

I found the males and females swarming on the nests about the middle of October. The nest is a large hill, very like that of our *F. rufa* in size and shape, but covered by a dome of minute stones instead of sticks. These insects always form the exterior of the dome of some dark material: near Sidney, where minute fragments of chocolate-coloured ironstone abound, they form the hill entirely of it; but in other localities, where they are constrained to build with fragments of white limestone, they carefully cover the nest with a layer of charcoal, not more than one-eighth of an inch in thickness, probably to increase the temperature of the nest.

I have frequently observed the neuters of this species "milking" the larvæ of a small black Cicada with their antennæ and fore legs, and greedily feeding upon the milky secretion which the larvæ exude from excretory ducts near the anus. The hills of these insects smell strongly of formic acid.

2. *F. Smithii*, Lowne.—An undescribed species, very similar in appearance to the last when alive, and extremely abundant; yet I never found the nest or perfect insects.

Workers 3 lines long. Head and thorax bright red; antennæ and legs dusky red; scale of the peduncle and abdomen black. Head subemarginate behind and broad, narrowed in front so as to be almost triangular. Eyes small. Thorax with a deep strangulation between the meso- and metathorax. Scale of the peduncle small and narrow, its upper margin rounded and blunt. Abdomen ovate. Abdomen and legs covered thinly with gray pubescence.

3. *F. aeneovirens*, Lowne.—Small worker scarcely 2 lines long. Ferruginous, thinly covered with short hairs; thorax and abdomen with a bright green tint. Head broadest before, and rounded behind. Eyes ovate and prominent, placed far back on the head. Ocelli very distinct. Mandibles strong, triangular, striated, and deeply dentated within. Clypeus carinated in its centre. Thorax rounded in front, the posterior portion compressed, with a strangulation between the meso- and metathorax. Scale of the peduncle ovate. Legs very long and slender.

The large workers are $3\frac{1}{2}$ lines long, with a nearly square bright red head, considerably broader than the thorax.

Sandy places near Port Jackson. They live underground, and make no hill: the openings to their nest are very small, and usually concealed under leaves or stones.

Section II.

4. *F. consobrina*, Erich. — These insects do not secrete formic acid. The neuters are very helpless, and are much sought by children, who suck a sweet fluid from their bodies. Although this is one of the commonest ants in New South Wales, I could not find a single nest: I found those of a closely-allied species, *F. intrepida*, in abundance: I am informed that the nests are very similar.

5. *F. intrepida*, Kirby (large worker); *F. agilis*, Sm. (small worker). — These insects live underground, in small colonies of 200 or 300 individuals, throwing up a small rounded tumulus of clay about a foot high, excavated by a labyrinth of passages, and furnished with several openings in its sides: the hillock is so hard and strong that it is not easily kicked to pieces. These ants close the entrances to their nests at night, and form the breeding-chambers at a considerable depth beneath the surface. The large workers (*F. intrepida* of Kirby) are exceedingly numerous and pugnacious, probably forming one-fifth or one-sixth of the entire colony: these work with the small worker (*F. agilis* of Smith), apparently sharing every labour with them. The female is 8 lines long, and coloured like the small workers: I have never seen a specimen, except one I collected from a hill myself. The nest does not smell of formic acid, even when greatly disturbed.

6. *F. nigroænea*, Sm. (large worker). — The small workers appear not to have been hitherto described. They are 2 lines long, black, with a green tinge. Head as wide as the thorax, elongated, and rounded behind. Clypeus neither carinated nor notched, thinly covered with golden hairs. In other respects the small workers are exactly like the large ones: they are very conspicuous when alive, on account of the bright golden pubescence which covers the abdomen: I know nothing of their habits, except that I have always found them on the ground.

7. *F. nitida*, Lowne. — I only know this species by one large worker, 3 lines long. Head, thorax and abdomen black;

antennæ and legs testaceous. Head broader than the thorax, broadest before and emarginate behind. Mandibles rufo-piceous, thick and strongly dentate within. Thorax very broad and rounded in front, much narrowed behind. Scale of the peduncle ovate, pointed above. Abdomen ovate, the apical margins of its segments testaceous. The whole insect thinly covered with long, pale, silky hairs.

8. *F. terebrans*, Lowne.—Small worker 4 lines long. Head and abdomen black; antennæ, thorax and legs piceous. Head large, broader than the thorax, rounded behind, rufo-piceous anteriorly. Mandibles large, triangular, strongly dentate within and obscurely rufo-piceous. Antennæ long and slender. Eyes large, ovate and prominent. Thorax rounded anteriorly; the meso- and metathorax much compressed laterally, with a small raised ocellate spot on each side of the mesothorax. Scale of the peduncle ovate, pointed above. Abdomen ovate, the apical margins of its segments testaceous, thinly covered with pale silky hairs.

Large worker 5 lines long, with a very large head.

Female 6 lines long. Black. Wings subhyaline, with fuscous nervures.

These insects excavate the hard dead stumps of gum trees (Eucalypti) with complicated galleries. Early in October I found winged females only in a nest: they were apparently hibernating, as they were packed closely in closed galleries, which I cut into by accident whilst searching for wood-boring beetles. A few days after I found swarms of the winged females, clustering about the flowers of Boronias and other Rutaceæ, for several days. In December I found numerous colonies of these insects, with abundance of large and small workers, but I sought for the sexes in vain.

9. *F. erythrocephala*, Fab.—I never saw but one specimen of this remarkable insect alive: it was running upon the ground in the bush; it frequently took a leap of nearly three inches; it does not run so fast as its form would lead one to suppose.

10. *F. itinerans*, Lowne.—I only know this species by the workers, which are 1 line long. Black or obscurely rufo-piceous, with the abdomen sometimes tinged with blue or purple; thinly covered with a ghost-pale pubescence. Head nearly twice as broad as the thorax, emarginate

behind. Eyes ovate, slightly prominent, placed forward on the sides of the head. Mandibles rufo-piceous, large, stout, triangular, strongly dentated with two large and several small teeth at their inner border, deeply punctured above, and covered thinly with short yellow silky hairs. Antennæ rufo-piceous; scape shorter than the head; flagellum thick, clavate. Thorax rounded before, with a tubercle above; the meso- and metathorax flattened laterally, and having a deep strangulation between them. Scale of the peduncle very large, ovate, and pointed above. Abdomen ovate, the apical margin of its segments piceous. Legs of moderate length. Tarsi fuscous. The joints of the tarsi and antennæ fringed with yellow silky hairs.

These small ants are far from being the least remarkable species I collected. Their nest is made underground, and occasionally in the substance of hard sandstone; sometimes in cracks and fissures of the rock: they appear to bore the sandstone with ease. They emit a very strong smell of formic acid when disturbed; but the most peculiar instinct possessed by these insects is that of always marching to and from their nest in dense regular files, like the foraging parties of predatory Ecitons in South America: however far these insects wander, a compact line of them may always be traced back to the nest: so regular are their tracts that I have frequently found the sandstone slightly grooved by them. I have been led to the belief that this wonderful instinct has been given them to protect them from the ravages of the predatory Myrmecias and Myrmicas, which are so abundant in the same localities. On the 31st of October, observing several individuals of *Myrmecia gulosa* carrying *Formica purpurea* in their huge jaws, I watched them carefully, and found that the great Myrmecias, four times the size of the *Formica* at least, feared the latter in open ground, and laid in wait for them on the outskirts of their nest, until they got an opportunity to slip out and seize one that had been unwary enough to stray from its companions into the vicinity of its great enemies' ambush. Had these insects the same instinct as their little congeners they would escape the danger. I always found that two or three individuals of *Formica purpurea* or *Smithii* put to flight the largest Myrmecias.

11. *F. rufonigra*, Lowne. — Worker $1\frac{1}{2}$ line long, rufo-

piceous, thinly covered with very short pale hairs. Head broader than the thorax, emarginate behind. Eyes large, ovate, prominent, and situated anteriorly on the sides of the head. Mandibles stout, triangular, strongly dentated within, and punctured on their upper surface. Scape of the antennæ strongly curved, as long as the head. Flagellum clavate, with the last joint the longest. Thorax rounded anteriorly, with a very deep strangulation between the meso- and metathorax. Scale of the peduncle large, ovate, and pointed above. Abdomen elongated, so as to be nearly cylindrical as in *Ponera*.

I found this insect on the ground, but know nothing of its habits.

12. *F. gracilis*, Lowne.—Worker $1\frac{1}{2}$ line long. Black or obscurely piceous, with a faint violet tint, covered with a very short pale pubescence; the legs often dusky, and the antennæ and tarsi testaceous. Its form is remarkably elongate. The head is elongate, broader than the thorax and rounded behind, but narrowed anteriorly. Mandibles long, triangular, and slightly curved inwards at their extremity, toothed along their inner margin, testaceous. Eyes large, ovate and prominent. Antennæ slender, as large as the body. The flagellum slightly enlarged at its distal extremity. Thorax rounded before, with a slight constriction between the meso- and metathorax. Scale of the peduncle ovate, pointed above. Abdomen ovate, thinly covered with short pale hairs. Legs elongate, the posterior pair considerably longer than the body.

Found running on the ground commonly near Sidney. I never succeeded in finding the nest.

(To be continued). B. T. LOWNE.

Life-history of Acherontia Atropos (Death's-head Hawk-moth).—The eggs, which are very large, are most commonly laid on the upper surface of the leaves of the potato, but also on *Atropa belladonna* (deadly nightshade), *Lonicera periclymenum* (honeysuckle), *Ligustrum vulgare* (privet), *Datura Stramonium* (thornapple), *Cannabis sativa* (hemp), *Genista tinctoria* (dyer's-weed), *Euonymus europaeus* (spindle-tree), and *Jasminum officinale* (white jasmin), beside the mulberry,

pear and strawberry in the gardens on the Continent. The young larvæ emerge in about twelve days, and feed on the leaves of all these plants, and also occasionally on the tuber of the potato, at first eating little and growing very slowly, but afterwards devouring the leaves most voraciously, and increasing in size with almost incredible rapidity : by the end of July the larva has attained its greatest dimensions, and is then full five inches in length, and thick in proportion. The head is prone, narrower than the 2nd segment, into which it can be partially withdrawn, at the pleasure of the animal, in the intervals of eating, which are few and far between ; it is widest at the mouth, and is thence gradually narrowed to the crown, which is rounded, and has a very slight median notch ; the 3rd and 4th segments are very much wider than the 2nd, are folded transversely, and have a conspicuous skinfold on each side ; the following segments, from the 5th to the 11th, both inclusive, are nearly uniform and nearly cylindrical, the dorsal surface transversely divided into narrow sections, and the sides folded both transversely and longitudinally ; the 12th segment bears a medio-dorsal and very scabrous horn, which is bent *downwards* almost close to its junction with the body, and *upwards* at the extreme tip. Colour of the head dull orange-yellow, with a conspicuous brown stripe on the outer side of each cheek, extending from the crown to the mouth ; body dull orange or lemon-yellow, inclining to green on the sides and beneath ; the 2nd, 3rd and 4th segments are immaculate and velvety ; the following segments are variegated dorsally with numerous oval, almost circular, dark purple spots, each of which emits a minute bristle from the middle ; these segments are also decorated with V-shaped markings of a dull violet-colour, and often bordered below with a whitish margin : each of these V-shaped markings consists of two oblique stripes, commencing, one on each side, a little in advance of the black, white-margined spiracle, passes upwards and backwards through two segments, and meets the corresponding stripe on the medio-dorsal line of the back ; the last of these V-shaped markings terminates in the dorsal horn which forms its apex ; the horn itself is yellow above and blackish beneath, and all the scabrous points are tipped with black. A very beautiful variety of this larva occurred plentifully during the July and August of 1858 ;

they were found feeding on the tea-tree, and no less than twenty were purchased at one time by the late Mr. Argent, at that time a dealer in insects at No. 32, Bishopsgate Street: this variety has the head paler than is usual, and the three thoracic segments ivory-white; the following segments tinged with olive; the dorsal spots whitish and rather rough to the touch; and the oblique stripes forming the V-shaped markings very dark olive or brown, without the violet tint; these Vs were in each instance accompanied by a smaller and reversed dorsal V, the two constituting a lozenge-shaped mark, so that there were a series of seven dorsal lozenges more or less complete: the constancy of these abnormal characters, and the fact that all the examples possessing them were found feeding on the tea-tree, induced me at first to suspect that we had a second British species of *Acherontia*, more especially as the variety had been described by Fuessly, figured by Hubner, and three times described in the 'Zoologist' (Zool. 1658, 6282 and 6788); but the idea seems untenable, as we have not two forms of the imago. A very singular property of this larva is noticed by Fuessly (Archiv. 8, 10), as subsequently quoted by Kirby and Spence, and has since been recorded by several correspondents of the 'Zoologist': it is the power of emitting a sound resembling that resulting from a rapidly-continued series of electric sparks; how this sound is produced, or with what object it is emitted, no one has been able to inform us. The full-fed larva burrows in the ground, and forms a compact cell, the earth composing which is mixed with gum discharged from the mouth of the larva, and kneaded into a kind of paste or mortar by the same ingenious mason, who, walling himself up in this manner, undergoes pupation in his self-constructed prison. The pupa is dark brown and glabrous; the head rounded; the eyes rather prominent; the cases of the maxillæ transversely rugose, and ankylosed to the adjoining case; the sides of the abdomen transversely produced in front of each spiracle; the 13th segment terminating in a scabrous horn, directed backwards and bifid at the tip. The pupa possesses the same unusual faculty as the larva, the power of emitting a distinct sound; but this is rather like a sharp, short squeak, repeated at intervals, than the crackling sound of electric sparks. The perfect insect *always* appears on the wing twice

in the year, in June and October: this circumstance has induced an idea that the species is double-brooded, an idea which is supported by the unquestionable fact that the July moths are the parents of the October moths; nevertheless the phenomenon is susceptible of another explanation: the larvæ bury themselves, when full-grown, almost simultaneously, at the end of July or in August; but they undergo their final change at very different dates: the greater number make their appearance from the 1st to the 26th of October, and these, with rare exceptions, are barren females; the abdomen is an empty cylinder, containing neither eggs nor ovary: one exception only has been observed, and that one is mentioned by Mr. Doubleday (Zool. 1862): later than the end of October the moths rarely appear, but nevertheless such is occasionally the case, and in confinement I have known them escape from the pupa-case in November and December; several actually made their appearance on a Christmas day, but I regret that these hybernal specimens were placed on the setting-board without any observation being made on the state of the ovary: Mr. Noye records (Zool. 1507) that he has obtained moths on the 18th of April, 7th August, 8th September, and 25th September, but offers no remarks on the state of these specimens, which appear to have been caught, not bred: the records of June captures are not only numerous, but are most authentic, and it is quite certain that during that month oviposition takes place, perhaps not exclusively, but generally; and all the females either bred or captured in June are abundantly prolific: finally, Mr. Doubleday mentions (Zool. 1862) that he bred a barren female which had been more than twelve months in the pupa. From a multitude of records it appears that the period of oviposition is June, of pupation August, and of arriving at perfection June also, the disclosures in October, November and December being imperfect and abnormal, and the disclosures in April and May, if such take place, accidental and exceptional: it is by no means improbable that examples disclosed in the winter sometimes live until the following Midsummer. The moth is remarkable on many accounts: its large size; the singular representation of a death's head on the thorax; its fondness for honey; and its power of emitting a squeaking or creaking sound when handled or

annoyed. The love of honey leads it to enter bee-hives, where its presence, or, as Huber suggests, its singular power of emitting sounds, seems to have a Mesmeric influence over the bees, who often allow this huge moth to pass unmolested between the combs, dipping its short maxillæ into the cells, and draining them, one after another, of their luscious contents. Sometimes, however, it appears not to escape scathless from these marauding expeditions, but falls a victim either to its own gluttony or the just resentment of the bees: be this as it may, the dead body of the moth is occasionally found walled up in wax, and exhibiting evidence of having made strenuous but ineffectual efforts to escape: this hive-robbing propensity is very familiar to bee-keepers in Africa and on the continent of Europe, who now usually construct their hives in a fashion that precludes the entrance of so bulky a robber; in this precautionary measure Huber tells us the bees themselves also take part, and, acting on the theory of locking the stable-door after the steed is stolen, these industrious insects, after being repeatedly robbed of their honey, barricade the entrance to their hive with wax, leaving only such an opening as is absolutely necessary for their own ingress and egress. With regard to the squeaking sound emitted by the pupa and imago, a vast deal has been written, but nothing worth repeating: it has, however, been clearly shown by Mr. Wollaston, one of the very best observers and most logical writers that the science of Entomology has ever produced, that the somewhat singular noise made by certain longicorn beetles is the result of friction, and having found the actual organs employed, he was able to reproduce the sound in the dead insect by rubbing the parts together (see 'Insecta Maderensis,' p. 432): here, then, is possibly the solution of stridulant or squeaking sounds produced by insects, and the Death's-head insect must not be excepted: its so-called "cry" is accompanied by motion, and at every movement the posterior polished edge of the thoracic mass seems to be rubbed against the anterior edge of the abdominal mass; and the sound, simultaneously produced, leading to the conclusion that the organ of voice, if so it may be called, is similarly located in Coleoptera and Lepidoptera. Whether the popular names of this moth, its taste for honey, the peculiar ornamentation of its thorax, or

its power of emitting sounds, or the combination of all these peculiarities, be the cause I know not, but certain it is that the Todtenkopfschnurrer, Todtenkopf, or Todtenvogel, is regarded with superstitious dread by our German neighbours, who believe its appearance an evil omen, presaging famine and death; and that the singular noise it makes is the utterance of the obnoxious prophecy. In this country the insect is a "blight" or "vermin" to the uninstructed, and as such is ruthlessly destroyed. I have received the magnificent larva and abundance of the pupæ of this species, through the kindness and liberality of Mr. Morris, of Deptford. — *Edward Newman.*

Life-history of Biston hirtarius. — In the month of April the moth may be seen at rest on the trunk of almost every tree that grows in London, particularly poplar, lime, pink hawthorn, and lilac: the females are generally busily occupied with the task of laying their eggs, thrusting their long slender ovipositor into the crevices of the bark: this economy is so imperative that I have never been able to induce the female to part with her eggs unless some substitute for the bark was provided; no leaves offer her any temptation; but if the female be confined in a chip-box, and the lid not quite closed, she will find the crack, and, protruding her ovipositor, will lay her eggs as far off as she can reach on the outside of the box. The young larvæ emerge in fifteen days, and, after devouring the egg-shell, ascend the trunk, and distribute themselves singly over the whole tree: their first efforts are indicated by very small holes in the leaves, particularly observable in the recently-expanded leaves of lime and lilac: the larvæ grow very rapidly, and by the third week in June have attained their full size, and before descending for pupation may often be observed on the trunks of the trees, reposing in a perfectly straight position. Head semiporrect, not notched on the crown, narrower than the 2nd segment, into which it is partially received: body almost uniformly cylindrical, the skin a good deal folded transversely; the ventral surface of the 4th segment produced; the 5th, 6th, 7th, 8th and 9th segments have each four minute warts arranged in a transverse series; the 12th segment has two somewhat approximate and rather larger dorsal warts, and the 13th segment has two smaller warts on the

anal flap ; each wart emits a single erect bristle ; below the anal flap, and attached to each anal clasper, is a short conical point directed backwards. Colour of the head pale plumbeous-brown, irrorated with black spots : body plumbeous-brown, with twelve red-brown stripes situated at nearly regular intervals, eight of them being dorsal or lateral and extending the whole length, and four ventral and extending only from the legs to the ventral claspers ; their margins are sinuous, and interrupted and bordered by a delicate, narrow, but also interrupted and sinuous, black line ; in some specimens the contrast between the colour of the reddish stripes and plumbeous interspaces is very striking, in others the two shades of colour are less distinct, but the delicate black intervening lines are always conspicuous ; the anterior margin of the 2nd segment is gamboge-yellow, as also are the warts on the 5th, 6th, 7th, 8th and 9th segments ; those on the 12th and 13th segments are brown ; spiracles oval, reddish brown, surrounded by a black ring ; ventral surface between each pair of legs gamboge-yellow, between the claspers pale yellow ; legs reddish brown, black at the extremities ; claspers of the same colour. At the end of June or beginning of July it undergoes pupation on the surface of the earth or just below it, and remains in the pupa state until the following April.—*Edward Newman.*

Entomological Notes and Captures.

183. *Inquiries respecting Acherontia Atropos.*—During the last fortnight I have had five larvæ of *Acherontia Atropos* brought me at different times. I placed them in a vessel half-filled with baked earth, and supplied them with potato-leaves. The first went down on the 20th, two on the 22nd, one on the 25th, and the last on the 28th. Your description in ‘Young England’ says, “The caterpillar is found in August, the perfect insect in October;” Mr. Stainton, in his ‘Manual,’ states, “Larvæ from middle of July to beginning of October,” perfect insect “from August to October.” Now, after reading these remarks I am puzzled to account for the appearance of the full-fed larvæ during the middle of July, and the following queries have suggested themselves to me :

—1. Is there an early appearance of the perfect insect in the spring, fresh from the pupa, which lays eggs from whence the present larvæ? 2. Do specimens of the perfect insect hibernate, and reappear in spring? 3. Do larvæ, after feeding for a short time in autumn, hibernate, and commence feeding in spring? 4. Do perfect insects appear the same autumn from pupæ of larvæ which have gone down in July preceding? One of these larvæ was taken in a field, on potatoes, in which no potatoes were grown last year.—*Charles M. Bonnor; Minehead, July 29, 1865.*

184. *Acherontia Atropos* in Lancashire.—Atropos larvæ are plentiful this year: I have had two of the olive-coloured variety.—*William Gregson; Lytham.*

185. *Larvæ of Acherontia Atropos*.—Larvæ of *A. Atropos* are making their appearance in this neighbourhood. A boy found two full-fed ones on July 29th, creeping over a bed of parsley in a garden at Wetherby; one of them I have. I asked the boy to show me the exact place, and the only food near was a few potato-tops growing on a rubbish-heap, which on examination proved to be stripped. As the supply of food was exhausted I began looking about, and soon found one on the hedge (about half-fed). I have heard of two others having been found about here.—*Edward Firby; Wetherby, Yorkshire, August 3, 1865.*

186. *Larva of Acronycta Alni*.—Whilst beating at Bishop's Wood, near Selby, on the 27th of July, I had the good fortune to obtain one larva of *A. Alni*, feeding on alder; it was changing its skin for the last time. I must confess I could not make it out until after the change, so totally unlike in colour, and also minus the clubbed hairs, with the exception of two very small ones on the second segment. I am glad to say it is now nearly full-fed. I found one some years ago feeding on buckthorn, but could not persuade it to eat in confinement.—*Id.*

187. *Abundance of Butterflies, &c.*.—The abundance of butterflies this season is remarkable, also of *Stellatarum*, and of *Noctuæ* at sugar, in this locality; but *Geometræ* and the smaller things seem to be rather rare. The larva of the buff-tip is unusually common here just now. At Castle Ashby, Northampton, last month I took Iris for the first time in my life: I saw numbers on the tops of high trees, but

only took one, on horse-flesh hung up for the purpose, and missed one on a jay gibbeted by a gamekeeper *in terrorem*. I was just too late for *Paniscus*, which is taken there. In the collection of a friend I saw a fine specimen of *Nonagria Hellmanni*, taken somewhere in Lord Northampton's park, in which there are many pools. The length of net for *Iris* given in your 'British Butterflies' would have been quite useless at Castle Ashby: fifty or sixty feet would scarcely have reached them; and how is such a net to be wielded? I rigged a small bag-net on the top of a stiffish fishing-rod, but owing to the "play" of the top I could not succeed even in bagging *Thecla Quercus*, the satellite of *Iris*, which I was fain to practise upon in default of reaching the imperial purple.—*E. Horton; Powick, near Worcester, August 3.*

188. *Chærocampa Celerio* at *Huddersfield*.—While spending a week in the North of Wales, at the end of last month (July), a specimen of *Chærocampa Celerio* flew into a cottage on the Isle of Anglesea, near the Menai Suspension Bridge, and was captured by one of the inmates, who kindly gave it to me.—*G. T. Porritt; 8, Clare Hill, Huddersfield, August 3, 1865.*

189. *Eggs of Vanessa Urticæ*.—I this morning sent you, in a lucifer-box, the eggs of *Vanessa Urticæ*. The eggs are so much the colour of the nettle on which they are laid that it is possible you may have trouble in finding them, but they are altogether like a bunch of grapes or a handful of gooseberries. For forty years or more I have been trying to witness the operation of this butterfly laying its eggs, and only succeeded this morning: the eggs, I suspect, are all deposited together, and have a singular appearance. I have watched *Polychloros* and *Cardui* laying their eggs, the one on the elm, the other on the cotton-thistle, and *Atalanta* on the nettle: these lay a single egg in a place.—*A. Maclean; Linden Road, Colchester, June 29, 1865.*

190. *Temporary Disappearance of Vanessa Urticæ*.—If I might offer a remark upon this circumstance (Entom. 251), I would respectfully suggest to Mr. Doubleday that it is probable the butterflies which were so abundant the third week in June were in great part individuals that had hybernated. They are sometimes out in good numbers till the new brood appears. I have no record, in the districts I am acquainted

with, of an earlier appearance of fresh imagos than in the latter part of June. They continue to emerge during July, and even, in some seasons, to the end of August. (There are some Entomologists who look upon *V. Urticæ* as double-brooded, an opinion which I have not seen confirmed by adequate proof). South and west of London this summer the larvæ of *V. Urticæ* were so numerous that it is no exaggeration to say they might have been gathered by thousands if wanted. *V. Atalanta*, which was very scarce last year, has also appeared in its usual numbers.—*John R. S. Clifford*; 21, *Robert Terrace, Chelsea*, August 3, 1865.

191. *Note on Orgyia antiqua*.—About ten days ago I found in my garden a cocoon of a female of this moth spun up in a plum-leaf. The young larvæ were, singular to say, in the act of escaping from the eggs. This may have been merely an exceptional case, or it may be proved hereafter that a certain part of the eggs deposited in the summer are hatched the same season.—*Id.*

192. *Colias Edusa at Greenhithe, Kent*.—While beating hedges for *Geometræ*, at Greenhithe, on the 22nd of July, along a road near Stone Wood, a fine specimen of *C. Edusa* floated rather languidly past me, enabling me at once to decide upon its cognomen. My brother, who was with me, immediately gave chase, but the insect, after proceeding a short distance along the road with its usual swiftness, passed over into the wood, where we lost it among the trees.—*Id.*

193. *The "Blown-over" Theory*.—It was about such a summer as this, some few years ago, that several fine specimens of *Pieris Daplidice* were taken round about Brighton; and this recalls to my mind the "blown-over" theory, and I must confess my opinion is very much altered about it. Last year, in July, I was with a friend on Shoreham Pier; it was a still, hot day, with hardly a breath of air, and now and then the common *P. Brassicæ* and *P. Rapæ* would lazily fly in. The flood-tide set in about 3 P. M., with a gentle breeze, and then came a host of the above-named butterflies, with a few of *P. Napi*; there must have been hundreds arrive within a very short space of time; but what surprised my friend and me was their alighting or settling on the sea with expanded wings, and the ease with which they rose again: we saw the same butterfly settle and rise again as many as four or five

times within a distance of less than a hundred yards, and with apparently as much ease as on land: they all came direct in from the sea from a south-westerly direction, and seemed to aim for the entrance of the harbour between the piers, though there were plenty of them came on shore on each side of the piers. The shore was covered with a coarse sort of Italian rye-grass, on which they were resting when we returned home, and in walking through the tall grass they rose in myriads. I was in hopes I might have been lucky enough to have picked out the rare *Daplidice*, but four out of every six were the common *Brassicæ*. I never before witnessed the arrival of such large numbers, and I felt very much interested in it. — *T. Thorncroft: 87, North Lane, Brighton, July 4, 1865.*

194. *Pachyta livida* at Birch Wood: its power of resisting laurel-poison. — Among the rarities procured at Birch Wood on the occasion of the Anniversary Meeting of the Entomological Club, I may mention *Pachyta livida*, which occurred very commonly on umbelliferous flowers; and when it was transferred to the laurel-bottle was totally indifferent to the fumes of prussic acid, or rather seemed to enjoy them, buzzing about in the bottle whenever it was placed in the sunshine, otherwise nestling quietly among the laurel: this resistance of poison continued until 11 o'clock in the evening, when another method of killing was adopted. — *Edward Newman.*

195. The Larvæ of *Zygæna Filipendulæ* a favourite Food of the Hoopoe. — A fine male hoopoe was brought me a few days ago by a friend, who had just shot it on Streatham Common: as another has been seen in the neighbourhood, the poor birds were doubtless breeding. In the stomach of the one I have I found seventeen perfect skins of large larvæ and a number of the hard head-plates of others, but no remains of Coleoptera whatever. I enclose two skins of larvæ, as I took them from the stomach: I think you will be able to name the species; they were all alike. — *David T. Button: Park Road, Clapham, May 27, 1865.*

[The skins are those of the larva of *Zygæna Filipendulæ*.]

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THE ENTOMOLOGIST.

No. 20.]

OCTOBER, MDCCCLXV.

[PRICE 6D.

Life-history of Bombyx Trifolii.—A succession of females extrude their eggs throughout the month of August, and during the first ten days of September; the oviposition of each individual female extends to three days and no more: the eggs are of a pale brown colour, and are dropped among the herbage without apparent method, always finding their way to the ground. The larva emerges in the autumn, but is very difficult to find at that season or during the winter, when it hibernates near the surface of the earth. It feeds on several species of grass; indeed I have found it in confinement perfectly indifferent in this matter, but I have never been able to induce it to eat any leguminous plant: it has, however, been so constantly asserted that this is the case, that I am disinclined to draw any inference from my own observations, which are simply negative: when the larva ascends the herbage, in April, it is three-tenths of an inch in length: it then rests extended on a blade or stalk of grass in a straight position, and, when it feeds, embraces the food with its feet, and devours from the tip downwards; but if disturbed it immediately falls to the ground, and rolls itself into a compact but not very perfect ring, the two extremities not meeting with precision, but passing each other, and thus giving a one-sided appearance to the ring: the same characters are observable during the entire period of its growth: after the end of April it feeds up very rapidly, and is full-fed at the end of May or beginning of June. Head hairy, scarcely as wide as the 2nd segment, which has three wart-like protuberances on each side of its anterior margin: body almost uniformly cylindrical, the incisions of the segments not distinctly marked, every part of the body being densely clothed with soft hairs; the hairs on the dorsal region tend towards a medio-dorsal line, thus forming a medio-dorsal ridge or crest which extends the entire length. Colour of the head purplish black, adorned with orange markings; the labrum and

clypeus are pale, and a pale stripe extends from the latter to the epicranium: colour of the body intense velvety black, with three longitudinal dorsal series of small snow-white spots, visible only on the incisions of the segments, and either when the larva is crawling, or more obviously when rolled in a ring: hair on the medio-dorsal region fulvous-orange, that on the sides fulvous-gray; the 3rd and 4th segments have each a lateral crescentic bright orange marking: anal flap orange, freckled with black: spiracles pale, each having above it an oblique line of a dingy brown colour in the middle, and almost white at both extremities; below each spiracle is a jet-black verruciform dot: belly smoky black, irregularly variegated with orange; legs orange-red, with black claws; claspers pitchy red, inclining to smoke-colour. It spins a very compact, hard, buff-coloured cocoon, under the surface of the sand which usually abounds where this almost maritime species occurs; and this cocoon, which is remarkably small in comparison with the size of the larva, is frequently slightly attached to the roots of the grasses on which the larva feeds: in this cocoon it changes to a light brown pupa: the moth appears on the wing in August. I am indebted to Mr. Wright and Mr. Moncreaff for liberal supplies of this larva.—*Edward Newman.*

Entomological Notes and Captures.

196. *Colias Edusa* and other Insects in the Isle of Wight.

— On July 27th I saw a fine specimen of *C. Edusa* flying over the cliffs at Gurnard Bay, in the Isle of Wight, but was unable to capture it. *Vanessa Cardui* was common, as also many others not usually classed as such in this part. The number of *Macroglossa Stellatarum* was something extraordinary; they were to be met with everywhere. *Lycæna Corydon* swarmed in many places, giving the downs quite a lively appearance.—*William Gibson*; 9, *Lupus Street, St. George's Square, August 10, 1865.*

197. *Colias Edusa* near Devonport.—This species has been rather plentiful in this locality, having myself captured several, the first a very fine female, on the 2nd inst.—*W. Hayward*; 32, *William Street, Morice Town, Devonport, August 23, 1865.*

198. *Butterflies in Devon*.—Butterflies have been very early this season, and also very plentiful. *Vanessa Cardui* and *Melitaea Athalia* have appeared in great numbers. *Colias Edusa* has also put in a goodly appearance: in fact all our usual butterflies have been abundant, as well as two others I have never previously seen here, namely, *Arge Galathea* and *Melitaea Artemis*.—*John S. Dell*; 121, *Navy Row, Morice Town, Devon*, September 11, 1865.

199. *Colias Edusa* and *C. Hyale*.—So little is known of the life-history of this species that it will be a great boon to Science if any Entomologist will endeavour to preserve living specimens throughout the winter. It is probable both species hibernate in October, and that those which survive the winter copulate in the spring, and deposit their eggs as soon as the young leaves of the clover are ready to receive them. The larvæ probably feed during June and July, undergo pupation in July and August, and appear on the wing in August and September; the same individuals, as in the case of *Gonepteryx Rhamni*, reappearing in the spring.—*Edward Newman*.

200. *Colias Edusa at Plymouth*.—*Colias Edusa* is very plentiful with us this season. I captured my first pair on the 24th of July, and about a fortnight after I could have had any quantity. I have not been fortunate enough to see *C. Hyale* this season, but have seen the variety *Helice*. I may observe that *C. Hyale* is very rare with us, but it has been taken at Whitsand Cliffs.—*G. C. Bignell*; 8, *Clarence Place, East Stonehouse, Plymouth*, September 14, 1865.

201. *Autumnal Brood of Anthocharis Cardamines*.—I have seen, for the second time, an autumnal specimen of *Anthocharis Cardamines*: this was quite at the latter end of August, and last year I saw one in September. How this can be accounted for I know not: I do not believe the species is double-brooded.—*John S. Dell*; September 11, 1865.

[I have no doubt whatever that the specimens seen by Mr. Dell were part of a second brood, but I do not hence infer that the species is double-brooded. Exceptional weather produces phenomena, both in the world of insects and of plants, equally exceptional; thus during the present summer that pretty annual, *Reseda luteola*, has a third time matured its seed, and yet we should all continue to regard it as an annual.—*E. Newman*.]

202. *Predilection of different Species of Argynnис for different kinds of Forestry.* — On the 24th of June, in passing through a gentleman's drive of about three-quarters of a mile (through the woods), I was struck with the regularity in which I found Aglaia, Adippe and Paphia ; Aglaia in that part where oak was growing ; Adippe where there was a mixture of oak, beech and other trees ; and Paphia where there were only fir trees. I do not know if this is generally the case, but it was so in this instance : they did not appear to mingle together, although the road was perfectly straight. — *G. C. Bignell ; September 14, 1865.*

203.—*Query respecting Argynnис Aglaia.* — Is it usual for the males of Argynnис Aglaia to appear a month before the females ? This year the males were out on the 20th of June near Worthing, and I did not see a female until the 26th of July, when they were out abundantly, and all quite fresh. The males having become very scarce and shattered by that time, it would be interesting to know if the butterfly should be less plentiful than usual there next year. I fear I shall not be there to see : perhaps some Entomologist would kindly notice.— *N. C. Tuely ; Wandsworth, September 11.*

204. *First Appearance of fresh Specimens of Vanessa Urticæ.* — With reference to the time of the first appearance of fresh specimens of Vanessa Urticæ, I may mention that I saw one such last year on the 6th of June.— *Id.*

205. *Remarks on Vanessa Urticæ.* — In reply to Mr. Clifford's queries (Entom. 288), I will add that the specimens to which I alluded were not hybernated ones. Hundreds of larvæ were hatched towards the end of April on the nettles in the field adjoining my garden : these were full-grown in May, and the butterflies were on the wing about the middle of June. There was not a single larva on the nettles from the third week in May till the first week in July, when swarms of young ones again appeared : these were full-fed early in August, and the butterflies are now coming out, clearly proving that this species is double-brooded, as I always considered it to be.— *Henry Doubleday ; Epping, September 4, 1865.*

206. *Variety of Satyrus Janira.* — On the 10th of June last I captured a female specimen of Satyrus Janira which had a dirty white blotch, about seven lines in extent, on the

upper corners of both right wings. It was apparently fresh from the chrysalis, and the whole of the scales on the discoloured parts were perfect. — *Henry Moncreaff; Southsea, September 11, 1865.*

207. *Gynandromorphism in Lycæna Argiolus.* — On the 10th of July last I captured a specimen of *Lycæna Argiolus* which is very perfectly gynandromorphous, if that be the correct expression. The right wings are blue without black, and the left have an unusually wide black margin; the latter are also larger than the other pair. — *N. C. Tuely; September 11, 1865.*

208. *Pupa of Lycæna Alexis producing a Parasite as well as its proper Imago.* — About the latter end of August last I succeeded in rearing a female imago of *Lycæna Alexis*, out of a pupa from which a parasitic larva had previously escaped. Both the wings on the left side of the butterfly are perforated near the outer margin, but the specimen is otherwise perfect. It is now in my collection. — *Henry Moncreaff; September 11.*

209. *Lycæna Arion near Plymouth.* — I was very successful this year in capturing, on the 17th of June, thirty-six *Lycæna Arion* (some of them much wasted). The weather was very boisterous, but I fortunately got into a sheltered nook under some high cliffs, where apparently there had been a landslip some years before; the ground was very rough, and it was with great difficulty that I could travel over it, or I should have taken many more. While there I saw a number of *Thecla Rubi*, I may say hundreds, skipping about and alighting on the ferns (common bracken): the beautiful green of the insect was so much like the colour of the ferns that it was with difficulty I could discern one from the other. — *G. C. Bignell; September 14, 1865.*

210. *Acherontia Atropos near Witney.* — I had a specimen of this fine insect brought me in June, and within the last few days have had nine larvæ brought by boys, with the remark, "Plaize I've brought a lokus." I have heard of another to-day, and have no doubt it will be found this year, as it occasionally is, in great numbers. In 1858 I had between thirty and forty, which were all obtained in this immediate neighbourhood. — *S. Stone; Brighthampton, Witney.*

211. *Acherontia Atropos near Minehead.* — I have had three larvæ of *A. Atropos* brought me since those already

recorded (Entom. 286). They seem very abundant round here; but most of the potato-diggers are rather afraid of them, fancying them to be locusts! indeed they go under that name among the lower classes here. — *Charles M. Bonnor; Minehead.*

212. *Acherontia Atropos* near *Hull*. — A score or two have already been found, and doubtless numerous other specimens would repay the search of the collector. We hear of them from Whixley and the Hammertons, and very likely they are pretty well distributed over the district. — *Alfred Wright; Sigglesthorpe Hall, Hull, August 7, 1865.*

213. *Acherontia Atropos* near *Devonport*. — On the 19th inst. I had a full-fed larva of the above species sent me by a friend residing a mile or two from this town, by whom also another had been captured a few days previously. — *W. Hayward; August 23, 1865.*

214. *Acherontia Atropos, &c.*, at *Ipswich*. — The weather here was very wet for nearly a month during July and August, and bad for collecting; but is now very fine. Many of our usual insects are very scarce, and some have not appeared at all. *Acherontia Atropos* has appeared this summer, and I have now five in pupa. I took a few *Agrotis lucernea* and *Fidonia conspicuata* in April, and some *Lithosia complanula* in July. — *Timothy Last; Borough Road, Ipswich, September 8, 1865.*

215. *Barren Females of Acherontia Atropos*. — *Atropos* larvæ and pupæ are unusually plentiful in this neighbourhood, as well as in Yorkshire and Lancashire. I have three in my possession, and have heard of some seven or eight more, all within a few miles. Are we to understand from Mr. Newman's life-history of the species that all the October moths are barren females, or only that all the females appearing at that time of year are barren? If the former, is not this the only species of Lepidoptera in which the female makes her appearance first? If any males do appear at that time of year, has any one discovered any organic imperfection in them? In Mr. Newman's description of the pupa he does not notice the two raised and granulated pear-shaped coverings to the markings which, in the moth, are supposed to resemble the cross-bones, and which are situated below the "death's-head," at the junction of the thorax with the

abdomen. These are very distinct in the only one of my pupæ which I can examine without disturbing: having been brought to me in the pupa state, it is now lying on the surface of the earth in my cage. It is very lively, but I cannot induce it to squeak without giving it rougher treatment than I should like to use. Nor did the two larvæ gratify me by making any noise whatever, although handled and subjected to various unnatural changes of place and receptacle. I shall be glad if Mr. Newman or any reader of the 'Entomologist' will kindly answer my inquiries as to the October moths; and I shall endeavour to verify what has been said by examining any specimens which emerge this autumn.—[Rev.] *Percy Andrews; Lilleshall, Newport, Salop, August 31.*

[I regret my meaning was obscure; I intended to convey my opinion that specimens emerging between the 1st and 26th of October are, with rare exceptions, barren females, i. e., neither males nor fertile females.—*Edward Newman.*]

216. *Acherontia Atropos* near *Portsea*.—I am informed by the potato-growers that the larvæ of *A. Atropos* have been very abundant in the Island of Portsea this year. Unfortunately I made inquiries for it rather late. One gardener told me that "them are girt grubs have been a crawlin all over my fields this year." He has since brought me two splendid larvæ and four fine pupæ, and has promised "lots" more. I hope to obtain enough for myself and some for my friends.—*Henry Moncreaff.*

217. *Acherontia Atropos* at *Leominster*.—The larvæ of this moth have been unusually abundant this autumn: two, which were found at Buckfields, have buried themselves.—*Henry Newman; Leominster, September 5, 1865.*

218. *Deilephila Celerio* at *Brighton*.—On the 8th of September last I took a good specimen of *Deilephila Celerio*, which flew in at the window of a room where I was sitting, at two o'clock in the morning. This is the second specimen of this species that I have taken in the last two years.—*John N. Winter; 28, Montpellier Road, Brighton, September 13.*

219. *Larvæ of Macroglossa Stellatarum* at *Devonport*.—During the whole course of my entomological pursuits, extending now over a period of twenty years, I never met with the larvæ of the above species in any great abundance, from ten to twelve being the average number taken in the season.

Within the last three weeks, however, I and two of my sons have captured above one hundred, in various stages of growth; indeed I may say that in some of our rambles every clump of Galium we examined contained several.—*W. Hayward*; *August 23, 1865.*

220. *Habits of Macroglossa Stellatarum.*—I have no doubt that this insect, like many other species of Sphingina, sometimes passes two winters in the pupa state. It was not uncommon near London in 1863: last year I saw only one imago, and not a single larva. This year it has been plentiful about London, and numerous accounts of its occurrence in various English counties have appeared. It would seem as if its appearance was in some mysterious way connected with the abundance or scarcity of its favourite food, namely, *Galium verum* and *G. aparine*. These plants are of uncertain growth, in some years covering the hedges and banks profusely; in other and drier seasons scarcely any will be seen. An entomological friend and myself repeatedly noticed, last year, the sudden dying down of the species of *Galium*, in various places, for lack of moisture, and speculated as to what the larvæ which fed upon it, almost exclusively, would do in such a predicament. *Macroglossa Stellatarum* is usually seen on the wing through the months of May, June and July; so that either the imagos emerge in succession, or they are longer lived than most moths. In captivity I have had them out in September, when the weather has been warm for the season. This moth's *penchant* for flowers is well known, but I have lately heard of a more singular one. A man engaged in a coal-yard at Putney, who at one time collected insects, informs me that during the past summer he was surprised to find, evening after evening, *M. Stellatarum* fluttering over the coal-heaps. He at first was inclined to suppose that they were attracted by some flowers in an adjacent garden, but as he was showing the moth to some of the men he was told that they had frequently seen it settling on the coal-barges; so it would seem there is some aroma given off from coal, which draws the moth to it. Both the dark and light varieties of the larva have been common this season, as might be expected. It seems difficult to rear, requiring to be kept in a cool place, and supplied very freely with food. Its growth, after the second change of skin, proceeds very rapidly;

between the second and third, and the third and fourth changes, there is only an interval of about four days. After the larva has formed its loose cocoon it continues nearly a fortnight in that condition ere the pupa state is assumed.—*John R. S. Clifford* ; 21, *Robert Terrace, Chelsea*, September 15, 1865.

221. *Coleophora cæspitiella*.—We are in want of your advice about an insect which has attacked the food of the red grouse in countless millions, and we fear the consequences: it makes its appearance as a little white silken bag, standing almost erect among the seeds of the rushes, and in such quantity as to make the whole moor look whitish, as though covered with hoar-frost. I send you a sample of this plague, and wish to know whether it is likely to have an injurious effect on the grouse.—*Wilson Neville* ; *Aughtermuchty*, September 2, 1865.

[The plant is *Juncus squarrosus*; the white cases, as I am informed by Mr. Stainton, are the larva-cases of *Coleophora cæspitiella*, a very abundant but minute moth: it lives through the winter in the larva state, and will not appear on the wing until next June. I may add, as a mere opinion of my own, that the presence of this little insect on the rush is not likely to be injurious to the grouse, in whatever quantities it may be devoured.—*Edward Newman*.]

222. *The Cattle Disease in America connected with an Insect*.—The 'Medical Circular' for August 30th contains an extract from the 'Memphis Bulletin' of July 25th, with regard to a cattle disease which has broken out in America, but happily is now abating. The extract would be too long for insertion *verbatim*, so I give the substance, and should be glad to hear what your correspondents know about this insect. By what I can gather from this notice I imagine it belongs to the genus *Tabanus*. In the early part of the summer an incredible number of black gnats made their appearance in the Mississippi bottoms, and attacked domesticated animals of all kinds, their attack proving fatal in many cases. After the disappearance of these pests an epidemic broke out amongst the cattle, horses and hogs, having all the appearance of erysipelas, and giving way under the influence of iodine applied on the bitten part. The favourite place of attack appears to be under the throat, although other places are sometimes chosen.—*William Gibson* ; August 30, 1865.

223. Power of *Pachyta livida* and other Insects to resist vegetable Poisons.—Mr. Newman's notice of *Pachyta livida* resisting the power of laurel-poison (Entom. 290) reminds me of a similar fact published about two years ago by Dr. Stierlin, of Schaffhouse, in the 'Mittheil. der Schweiz. Entom. Gesellschaft,' No. 4, April, 1863, p. 119. The following is a rough but close translation of his article, given for the benefit of such of your readers as may not have the opportunity to read the original. Dr. Stierlin says:—"On making, last summer, the survey of an apothecary's shop, I found a glass, holding about a pint, three-fourths of which was filled with finely-pulverized root of Belladonna, and which was closed with a well-fitting and intact cork. In this powder I noticed numerous traces of insects, which observation induced me to take the glass and contents home. There I examined the thing more carefully, and I found a great number of *Anobium paniceum* in all stages of development, including numerous larvæ of different sizes, moving about in a very lively way. These larvæ have no other food but this powder, which is so very poisonous to man and warm-blooded animals, the dose to full-grown men being half a grain to two grains at the utmost: notwithstanding this they thrive in it splendidly. The poison does not seem to have any effect on these creatures. We may learn by this what success there is to be expected if we try to keep intruding parasites off our collections and other objects by using vegetable poisons." — *Albert Müller.*

224. The Great Rove-beetle preying upon the Turnip-grub.—A few evenings since I was sitting on a sand-bank near the sea, shortly after sundown, when my attention was attracted by a number of curious-looking objects a short distance from me. On closer inspection they proved to be a number of the common rove-beetle (*Staphylinus olens*), each dragging a larva of *Agrotis exclamationis* to the shelter of a large plant of *Beta maritima*, under which I found their holes. On examining the larvæ I found that they had all been disabled by a gripe with the mandibles. Having read that this species was a carrion-feeder, I thought it likely that they were about to bury the larvæ as food for their young. I secured two of the beetles and one living larva, which I took home and put together in a flower-pot: one of the beetles

instantly seized the larva, and, having gnawed a hole in it about the fourth segment, commenced feeding on the inside, which it completely cleared out in twenty minutes, leaving nothing but the empty skin. I have since discovered large numbers of the skins of larvæ in or near the holes of these beetles, which abound in the locality. The numbers of larvæ they destroy must be immense, and the benefit to the farmer proportionally great.—*Henry Moncreaff; September 11.*

225. *Dermestes lardarius* a Wood-borer.—There are a thousand things, familiar to an Entomologist as "household words," which, to a person ignorant of the wonders of the insect world, would, were they narrated to him, appear matters of such improbability that an Entomologist would not be in the slightest degree surprised at finding his familiar facts pronounced to be mere fictions of romance. Place that hideous, misshapen piece of deformity, which we turn up out of every sand-bank, before a non-entomological person, and tell him that in process of time it will become an elegant, beautiful beetle, in fact the counterpart of the *Cicindela campestris* which he is admiring: are we surprised at the smile of incredulity that greets us? Certainly not. Or tell poor Hodge, who is gazing ruefully on his demolished bed of cabbages, that all his disappointment is due to those snow-white butterflies that his children are chasing with such joyous glee, and mark his look of dumb amazement. But the Entomologist may ask himself whether his favourite science does not, from time to time, reveal such marvels that even the most enthusiastic student is oftentimes startled as some new wonder suddenly bursts upon him. "Seeing is believing" is no doubt a well-known old saying, but it is far from being adapted for universal application: it is no uncommon thing to hear a person declare, "Well, I would not have believed it even if I had seen it with my own eyes." Another person reminds you that, upon a certain occasion, you yourself declared so-and-so to be a fact, adding, by way of confirmation, you had witnessed it with your own eyes! "Ah, yes, my dear fellow," you reply; "I certainly did think so, but upon mature reflection I have arrived at the conclusion that I was quite mistaken notwithstanding." Some persons may probably think the latter observations applicable to the following account of that well-known coleopteron, *Dermestes*

lardarius. A short time ago a carpenter brought to me a small piece of Honduras mahogany, in which some larvæ were feeding; the wood was perfectly solid, and was part of a larger piece similarly perforated, and upon which similar larvæ were feeding. Two or three of the larvæ were partly exposed by splitting the wood, and their operations distinctly visible; their rasping or gnawing of the wood could also be distinctly heard. The carpenter thought the grubs were those of some valuable beetle, and wished to dispose of them. I could not enlighten him on that point, so he agreed to await the event. For four or five weeks the larvæ continued to feed upon the wood, having by that time buried themselves within it. I became anxious to ascertain what progress they were making, and for that purpose cut away some of the wood, which again exposed the larvæ: I found they had done feeding, and were just changing to the pupa state. About a week later I again examined the insects, and, to my astonishment, beheld my wood-boring larvæ metamorphosed into *Dermestes lardarius*: on splitting up the wood I found the same insect in various states of development. The common or more popular name of this insect is the bacon-beetle, or, as it is called in Hampshire, the bacon-bug: all beetles are bugs in that county. It is extremely abundant in houses, feeding upon bacon, biscuits, and most kinds of provisions; out-of-doors it is common upon heaps of garbage, dried bones, skins of all kinds, and it occasionally appears in long-neglected boxes of insects. I fancy the present is the first notice of it also being a wood-feeder, and that it is one, I may add, I am fully convinced of, because "seeing is believing."

—*Frederick Smith; Bournemouth; August 31, 1865.*

226. *Luminosity of Fulgora laternaria*.—It occurs to me that the above proverbial saying is exceedingly applicable to the question involved in a long controversial stumbling-block, the luminosity or non-luminosity of *Fulgora laternaria*: those who have been fortunate enough to have witnessed this brilliant luminosity believe in it; those, on the contrary, who have not, gravely shake their heads, and doubt the fact. Some two years ago I myself again stirred up the luminosity of *Fulgora*; but, notwithstanding the strong evidence of the truth of the fact, those who had seen the insect alive, not having at any time observed its brilliancy, gave testimony

against it, and, for the time being, apparently extinguished the last feeble ray that flickered around *Fulgora*; but it was not quite extinguished, and has, I am rejoiced to observe, once more burst out in all its former brilliancy. My friend Mr. Evans, of the Admiralty, had, fortunately, a son resident at Honduras, and to him he applied for information on the subject. The insect does not appear to have been very common in the locality where Mr. Evans resided, but he replies, "At length I have obtained the insect, and it is decidedly luminous." Such is the reply of the son of a well-known Entomologist, one who has a perfect knowledge of the insect, and one who does not mistake *Pyrophorus* for *Fulgora lateraria*.—*Frederick Smith.*

227. *No Wasps at Bournemouth in 1865.*—There are no wasps here. Last year I passed the month of August here at Bournemouth, and so numerous were wasps in this locality that I concluded it was one of the most prolific spots for those insects that I had become acquainted with; the commons in the neighbourhood, the woods and cliffs, were alive with them. This year I have not, during the entire month, seen a single wasp.—*Id.*

228. *British Species of Ants at Bournemouth.*—Last year, on my return to town, I discovered, amongst a host of unexamined specimens of Formicidæ, a few examples of the *Formica exsecta* of Nylander: the following are my subsequent observations on that insect. *Formica exsecta* is very abundant at and in the neighbourhood of Bournemouth: it belongs to the section of building ants: its nest is usually composed of bits of dried grass, straws, small portions of twigs, &c; its nests never attain the dimensions of those of *F. rufa*, seldom exceeding a foot in diameter at the base. Nests are found in open spaces in fir woods, occasionally at road-sides, amongst bushes of heath or furze, and also, at times, on exposed open heaths: when a nest is disturbed the ants attack furiously; their courage and pertinacity are admirable; their file is sharp, and their hold-on most determined, so much so that, on endeavouring to remove them, the head frequently remains clinging to the hand when torn from the body. August is too late a period of the year to obtain the males and females; neither could I, by the most assiduous search, find a single example of either of those sexes: in Finland, Dr.

Nylander finds the males and females during the month of July ; so that, making an allowance for difference of latitude, we may safely conclude, I imagine, that the latter end of May or during the month of June would be the season for those sexes ; in fact their appearance would be simultaneous with those of our common wood-ant (*Formica rufa*). At Bournemouth, *F. congerens* takes the place of *F. rufa* : I did not observe a single nest of the latter ant : these species very closely resemble each other, the workers being difficult to separate, but the males and females are readily distinguished : a few females still occasionally appeared during the month of August, and these are at once known from the same sex of *F. rufa* by their abdomen being opaque black, that part of the body being highly polished and shining in *F. rufa*. *F. aliena* of Foerster is also found here, and by no means uncommonly : this species belongs to the burrowing section of ants : it constructs subterranean galleries, and excavated roads or tunnels, branching off from the nest in all directions ; these tunnels have numerous outlets, from whence the ants are to be seen constantly issuing, running with great rapidity from one outlet to another. This ant closely resembles the common garden ant (*F. nigra*), but it is very distinct ; its habit is different ; it is smaller, runs with much greater velocity, and differs in other particulars from the more generally distributed *F. nigra*. *F. aliena* is not uncommon on the sand hills at Deal, on the cliffs at Bournemouth, and, I apprehend, on most of the large commons throughout Hampshire, Kent and Surrey. *F. cunicularia* is very plentiful here, as are also *F. fusca*, *F. umbrata* and *F. flava* ; but I have not detected either *F. rufa*, *F. sanguinea* or *F. fuliginosa*. *Tapinoma erraticum* is very common ; it is found in small communities on bare spots on open commons : these spots it appears to prefer, particularly those situations where the turf has been recently cut : it is a burrowing ant, very active, but, as far as I observed its habit, makes no attack when its communities are disturbed. Of *Myrmicidæ*, only the commoner species have yet been detected ; but I may observe upon the immense number of nests that are to be found of *Leptothorax Acervorum* : this minute ant is found in every situation,—in the woods, in stumps of felled fir trees, in banks, on the cliffs, on open commons, in fact in all conceivable situations :

it is not usually an abundant insect, but, according to my experience, usually much more prevalent in situations on the coast.—*Frederick Smith.*

229. *Hampshire a good Collecting County.*—Hampshire is a famous county for an Entomologist, and this neighbourhood most favourable: there are more butterflies here than I ever remember to have seen in any other locality; *Colias Edusa* is by no means scarce about Christchurch, and the dry, sandy spots swarm with fossorials: *Pompili* and *Crabronidae* abound, whilst the heath-loving bees are plentiful on their beautiful flowers. Of the Coleoptera of this district I know little or nothing: August is not the time for them, but one cannot roam over the surrounding heaths without being observant of the hosts of *Cicindela campestris*, *C. maritima* and *C. sylvatica*.—*Id.*

230. *Acherontia Atropos bred: barren Females.*—I told you some time ago that I had three larvæ of *Acherontia Atropos* brought me in July: all three came out on the 16th of September, one male and two females, and I never saw finer specimens: both the females were barren, the abdomens containing nothing but fatty matter, just like those of males.—*Henry Doubleday, in a Letter to E. Newman.*

231. *Successive Larvæ of Pyrameis Cardui.*—I am in a fix at present about the economy of this species: there are small and nearly full-grown larvæ feeding together now; in fact only yesterday one spun up, and another, a very small one, changed its skin. Whether these late larvæ are produced by the early imagos of this year, or the late ones of last year, I am unable to determine. I believe all will produce the perfect insect this autumn.—*J. Pristo; Alverstone, Whippingham, Isle of Wight, September 20, 1865.*

232. *Catocala Fraxini in the Isle of Wight.*—A friend of mine, near here, took a specimen of this fine insect at rest on his house, on the 15th of August last. It measures very nearly four inches across the wings. We believe this to be only the second Isle of Wight specimen.—*Id.*

233. *Hybernation of Colias Edusa.*—I am certain that some of these live through the winter in the perfect state. I remarked on one occasion, when this species was very abundant here, that I took all females in clover fields, and all males in stubble, which I accounted for by supposing the

females sought the clover for the purpose of depositing their eggs on it: I have several times kept the females in confinement, with the view of obtaining eggs, but always without success.—*J. S. Dell; September 16, 1865.*

234. *Food-plant of Anthocharis Cardamines.*—In No. 6 of the 'Entomologist,' Mr. Newman enumerates several plants as the food of the larvæ of *Anthocharis Cardamines*. In addition to these it may be found upon the ladies' bedstraw (*Galium verum*). In the midsummer of 1863 I found two larvæ on the above-named plant, which I reared, one from a green pupa, the other from a pupa of a brownish hue.—*S. A. Davis, jun.; Seven Sisters' Road, Holloway, N.*

Duplicates and Desiderata.

Duplicates.—I have duplicates of the following insects, in good condition:—*G. Rhamni, C. Edusa, A. Paphia, A. Adippe, A. Euphrosyne, V. Cardui, A. Galathea, S. Semele, T. Quercus, L. Agestis, L. Corydon, L. Alsus, L. Argiolus, S. Alveolus, H. Actæon* (taken at Lulworth Cove, in July), *M. Stellatarum, Z. Filipendulæ, C. Miniata, L. Dispar* (bred), *E. Lanestris* (bred), *B. Quercus, O. Sambucata, P. Cytisaria, H. Thymiaria, C. Pusaria, L. Adustata, C. Prunata, E. Bipunctaria, L. Impura, L. Pallens, X. Polyodon, H. Populæris, T. Gothicæ*, and pupæ of *P. Bucephala*. *Desiderata.*—I shall be glad to receive a list of duplicates from anyone who wishes to exchange. I require, besides many others, *C. Hyale, A. Iris, V. Antiopa, G. C-Album, A. Aglaia, T. Betulæ, L. Arion, S. Paniscus*, any of the Hawk-moths, except *Ligustri* and *Stellatarum*, *L. Monacha, A. Villica, L. Trifolii, E. Versicolora, C. Haworthii*.—*Miss Ellen Dibben; Critchill, Wimborne, Dorset, September 1, 1865.*

Papers by Mr. Crotch, Mr. Lowne, &c., and the Reports of the Entomological Society, unavoidably stand over.

*** Great disappointment has been expressed at the receipt of another periodical *instead of this*, when ordered through booksellers: the difficulty probably arises from the somewhat similar name. Please order NEWMAN'S 'Entomologist.'

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[PRICE 6D.

Notes on the Genus Hister. By G. R. CROTCH, Esq.

THE admirable Monograph of M. de Marseul on this group, begun as long ago as 1854, and accompanied with figures of every species, has considerably popularized the study of this somewhat difficult group. Their singular sameness in appearance doubtless deters many, but when once the complicated variation in their striae and punctuation, and the beautiful characters afforded by the under side, are fairly comprehended, they no longer seem wearisome. Some latitude, however, must be given to the descriptions of striae, &c., for they are by no means cast in the same mould; some indeed, as *Saprinus nitidulus*, vary exceedingly. In the true Histers, to which I wish now more particularly to direct attention, the principal characters of value are the striae on the elytra and the thorax. On the former, in *H. bissexstriatus* for example, are six perfect striae, which are termed the first, second, &c., dorsal counting from the shoulder, the last being called the sutural. The fourth, fifth, and sutural are very generally abbreviated. In addition to these, however, a most important stria exists, namely, at the margin of the elytra, outside and parallel to the first dorsal: this is the subhumeral stria of M. de Marseul, and is used by him to divide the species into groups. When it is entire and closely parallel to the first dorsal, it is termed the internal subhumeral stria, and is occasionally broken, the continuation starting at a different point, and being more like an appendage to the real stria. The external subhumeral stria is further removed from the first dorsal at its origin, and subsequently has a marked angulation in its course. The thorax has one or two striae at the sides. The subhumeral stria must not be confounded with the small oblique plica visible at the humeral angle of most Histers.

The preceding remarks will render the following table of groups more clear. As before, species not yet found in Britain are printed in *Italics*.

A 1. Elytra with an internal subhumeral stria. *4-maculatus*.
 A 2. Elytra with an abbreviated internal stria, furnished exteriorly with an appendage forming part of an external stria *unicolor*.
 A 3. Elytra with an external subhumeral stria.
 B 1. Thorax with two lateral striae.
 cadaverinus ; succicola ; merdarius.
 B 2. Thorax with one lateral stria.
 C 1. Subhumeral stria entire.
 D 1. Anterior tibiæ 4-dentate *fimetarius*.
 D 2. Anterior tibiæ 5-dentate.
 ignobilis ; *carbonarius* ; *ventralis* ; *purpurascens*.
 D 3. Anterior tibiæ 6-dentate,
 marginatus ; neglectus ; *nigellatus*.
 C 2. Subhumeral stria abbreviated at both ends.
 stercorarius.
 A 4. Elytra with no subhumeral stria.
 B 1. Thorax with two striae.
 uncinatus ; 4-notatus ; bissexstriatus.
 B 2. Thorax with one stria only.
 bimaculatus ; 12-striatus ; *corvinus*.

 1. *H. 4-maculatus*, L., Mars. 204.—Black ; elytra with a more or less apparent large lunate red spot, often separated into two ; elytra with three dorsal striae ; anterior tibiæ 3-dentate ; propygidium smooth in the middle. 4—5 lines. Distributed throughout Europe.
 2. *H. unicolor*, L., Mars. 261.—Thorax with two abbreviated striae ; elytra with three dorsal striae entire ; anterior tibiæ 3-dentate ; prosternum at the apex acuminate, entire. $3\frac{1}{2}$ —4 lines. Also common throughout Europe, and N. Africa.
 3. *H. cadaverinus*, E. H. (1803), Mars. 291.—Elytra with four dorsal striae entire ; tibiæ 5-6-dentate ; prosternum at the apex truncate or slightly emarginate. 3—4 lines. Europe and Asia.
 4. *H. succicola*, Th. iv. 224 (1862).—Closely resembling *H. cadaverinus*, but smaller, with the frontal impression

biarcuate, the prosternum acuminate at the apex, the mesosternum with a triangular incision, and the pygidium more densely punctured. 3—3½ lines. Found in the sap of rotten trees in S. Sweden. I have specimens from Weston-super-Mare and Lincolnshire (T. V. Wollaston) which agree with the above description, as also with a type sent by M. Thomson himself.

5. *H. merdarius*, E. H. (1803), Mars. 297.—Elytra with four dorsal striæ entire; tibiae 4-dentate; antennæ with the club ferruginous; pygidium strongly punctured. 3 lines. More oblong than the preceding, recalling the shape of *neglectus*. Spread over Europe and the Mediterranean, but everywhere rare. My specimens come from the London district.

H. simetarius, Hb.—A beautiful and distinct species; the elytra have each a large oblique red spot. It is widely distributed over Europe, but appears to be wanting in Sweden as well as here.

6. *H. neglectus*, Germ. (1813), Mars. 531.—Oval, a little elongate; elytra with three dorsal striæ entire, the fourth slightly abbreviated; pygidium densely punctate; frontal stria sinuate. 2½—3 lines. Europe, Asia and Africa; nowhere rare. The elongate form separates it from nearly all its congeners.

7. *H. carbonarius*, E. H. (1803), Mars. 534.—Elytra with three dorsal striæ entire, the fourth abbreviated beyond the middle; pygidium rather sparingly punctured; prosternum smooth, acuminate. 2½ lines. Very abundant. M. de Marceul, regarding this as a composite species, has separated *H. ignobilis* and *H. ventralis* from it. The former should be larger, with several deep punctures at the anterior angle of the thorax, and the pygidium much more strongly punctured. The latter should be still more suborbicular in form, and have a broad equal margin to the thorax, not raised or thickened. I have seen nothing in this country to answer this description as yet. *H. nigellatus*, Germ., is also a little like *carbonarius*, but has the fourth dorsal entire, and the prosternum with two basal striæ. It appears to be a fungus-feeding species.

8. *H. purpurascens*, Hb. (1792), Mars. 537.—Elytra with an ill-defined red apical spot, three dorsal striæ entire, and

the fourth subabbreviated; all the striae nearly impunctate; pygidium very densely punctate; elytra with the marginal fovea underneath smooth, impunctate. 2 lines. Europe, generally common. A black variety also occurs not unfrequently, but the punctuation of the pygidium is at once characteristic.

9. *H. marginatus*, Er. (1834), Mars. 540.—Elytra with four dorsal striae entire, and a small basal curve over the abbreviated fifth; thorax with the stria entire, bordered within with several large deep irregular punctures; pygidium sparingly punctured. 2 lines. Rare. Central Europe, not occurring in Sweden. Under leaves in May.

10. *H. stercorarius*, E. H. (1803), Mars. 546.—Elytra with three dorsal striae entire, fourth and fifth very short; tibiæ 4-dentate; pygidium strongly and deeply punctate. $2\frac{1}{2}$ lines. Europe and Algeria, but apparently everywhere rare. The punctuation of the pygidium is very remarkable.

11. *H. uncinatus*, Ill. (1807), Thoms. 223; *sinuatus*, Ill. (nec Fabr.), Mars. 553.—Elytra with an arcuate longitudinal red spot; three dorsal striae entire; tibiæ 3-dentate; pygidium moderately punctured. $3\frac{1}{2}$ —4 lines. Europe generally, but very rare in this country. I have not hitherto seen a specimen.

12. *H. 4-notatus*, Scriba (1790), Mars. 556.—Elytra with two red spots, sometimes reunited; three dorsal striae entire; tibiæ 3-dentate; pygidium hardly punctulate; prosternum emarginate at the apex. $3\frac{1}{2}$ lines. Europe. Very rare in England, but perhaps confounded with *H. 4-maculatus*. These red-marked species bear a close resemblance to each other, but the subhumeral stria and singular punctuation of the propygidium distinguish the commoner *H. 4-maculatus*, while *H. 4-notatus* may be always known by the emarginate prosternum.

13. *H. bissexstriatus*, Fab. (1801), Mars. 572.—Of a rounded form; thorax with the external stria very short; elytra with four dorsal striae entire; tibiæ 3-dentate; propygidium strongly, pygidium finely, punctured. 2 lines. Under rotten vegetables. Europe and the Mediterranean; not rare in England.

14. *H. bimaculatus*, L., Mars. 582.—Elytra with a bright oblique red apical spot; five dorsal striae entire; tibiæ

3-dentate; pygidium finely and sparingly punctured. 2 lines. Universally distributed, even in India, N. America, &c., but not common. In hot-beds.

15. *H. 12-striatus*, Schr. (1781), Mars. 586.—Elytra with six dorsal striae entire; tibiæ 3-dentate; pygidium almost smooth. 2 lines. Europe and the Mediterranean, common. *H. corvinus*, *Germ.*, was formerly quoted by Stephens as a native of this country, and its occurrence is extremely probable; it has four dorsal striae entire; tibiæ 4-dentate; propygidium strongly punctate; pygidium almost smooth; thus resembling *bissexstriatus*, from which the absence of the external thoracic stria, and the tibiæ, separate it.

16. *H. 14-striatus*, Payk. (1798), Thoms. 230.—Closely resembling *H. 12-striatus*, but with a very abbreviated trace of a subhumeral stria; pygidium and propygidium more evidently punctulated, especially on the sides; thorax with a few impressed punctures near the anterior angle. 2 lines. Widely distributed. Not occurring in company with the preceding. Marseul (p. 248) expresses considerable doubts as to the validity of this species, and I must agree with him; I have seen some twenty or thirty examples, and have nearly all shades of connexion; the punctuation of the pygidium appears to me to vary insensibly from one to the other, and the stria is, in half my specimens, represented by a row of punctures only.

In the above paper “prosternum” is used for the lobe which springs forward from it, and the denticulations of the tibiæ must be understood to apply to the anterior alone.

G. R. CROTCH.

University Library, Cambridge.

Entomological Notes and Captures.

235. *Argynnis Lathonia* at Braintree.—Yesterday, about 9 A.M., I took, in the above town, in the garden attached to my residence, a specimen of *Argynnis Lathonia*, which, according to your ‘British Butterflies,’ is very rare. — *B. Holland; Manor Street, Braintree, Essex, September 20, 1865.*

236. *Colias Edusa* and *Acherontia Atropos* at Portsdown, near Portsmouth.—On September 16th I saw on Portsdown

Hill, about four miles from Portsmouth, three splendid male specimens of *Colias Edusa*, two of which I succeeded in capturing. I have never before met with it. Is it not late for fresh specimens of that species? I have also procured five more pupæ of *Acherontia Atropos* from a potato-field near Landport, making eleven in all.—*Henry Moncreaff; Southsea, September 16, 1865.*

237. *Singular Habit of Thecla Quercus.*—Whilst collecting, last July, at West Wickham, I shook a small sapling ash, and observed several specimens of *Thecla Quercus* fly from it, and almost immediately return and settle again on the leaves, in most instances upon the same identical leaf from which they had been disturbed. Further observations proved this to be the case with most of the young ash trees in the wood, and I could have captured dozens had I been so disposed. Unfortunately, however, the insect had been out some time, and the greater majority of them were not in good condition. The same day I observed about twenty specimens gambolling and settling upon an ash tree near Beckenham, no oak tree being near. The larvæ are supposed to feed exclusively on oak. Why, then, did the imago show such a partiality for ash? Does the larva feed on that tree also? I should be glad to hear an opinion on this point.—*S. A. Davis, jun.; Seven Sisters' Road, Holloway, September, 1865.*

238. *Supposed New British Butterfly.*—Having seen a very beautiful pair of butterflies this summer, and not being able to see any at all like them in any collection of British butterflies that I can meet with, I describe them, and should feel very glad to know what they are, and whether they are a well-known species. I saw them in a lane by the side of a wood in the south of Devonshire. One of them settled on a leaf close to me, so that I had an opportunity of looking at it for some time. It was of a uniform red colour, nearly as bright as the red in *Vanessa Atalanta*, and had no spots, but appeared to be veined with black. If you can spare time to give me your opinion, I shall feel much obliged.—*Margaret Mallock; Brampton Speke, Exeter, September 26.*

[I scarcely dare venture an opinion: my correspondent appears to have written the word "copper" after "red," but has drawn the pen through: had it been allowed to stand I

should have suggested that *Polyommatus Hippothoe* might have been the insect seen.—*Edward Newman.*]

239. *Acherontia Atropos* at *Lytham*.—This has been a fruitful season for the larvæ of this noble insect. About the end of July I began to receive the larvæ nearly full-fed. At the beginning of August I received several pupæ, and more are being brought me. At the end of August I had six brought in one day, and one larva only about half-fed; and, strange to say, I had on the 13th of that month the perfect insect just out, not the least wasted; and on the 8th of September another: they both are now on the setting-boards. So that I had the larva, pupa and perfect insect at the same time. Nearly all the larvæ and pupæ were taken in potato-fields, the crops on these fields last year being oats, the farmers here not being allowed to grow two crops of potatoes in succession, except in gardens and small patches. I have now about forty pupæ, which, if kept in soil, will not come out before next May, or the beginning of June: the potato-plant is then just appearing above the ground. This I believe to be the general state of the insect here. It is possible to force them out this autumn, and probably the two perfect insects, which I have only lately received, have been forced out by some means. Should these live over the winter, I do not see how they could deposit their eggs in May or June. I have known them to be kept by the country people here, in a common toy-box upon the shelf in a warm house, all the winter, without the least particle of soil, and to have come out perfect the summer following. I have always found them very difficult to breed, probably from being kept too hot and dry. P.S.—Since writing the above I have had the perfect insect.—*William Gregson; Lytham, September 17, 1865.*

240. *Pupæ of Acherontia Atropos and Larva of Sphinx Convolvuli near Devonport*.—This afternoon I had brought me two pupæ of *Acherontia Atropos* and one larva of *Sphinx Convolvuli*, captured a mile or two from the town: the latter is about half-fed, and is feeding freely on *Convolvulus arvensis*. I hope to obtain more from the same locality, as the food-plant is very abundant there.—*W. Hayward; 32, William Street, Morice Town, Devonport, August 23, 1865.*

241. *Trochilium chrysidiforme* at *Folkestone*.—On Tuesday, the 6th of June, I captured a fine specimen of *T.*

chrysidiiforme at Folkestone, near the end of the tramway in "The Warren." When first seen it was flying slowly, but it soon settled on some plant, which, in my anxiety to secure the insect, I regret I failed to take note of. The sun did not shine very brightly at the time, as misty clouds were floating about and rather obscured it.—*H. Nicholls, 2, St. Peters Street, Essex Road, Islington, in Ent. Mo. Mag.*

242. *Extraordinary manner of Oviposition in Iodis vernaria.*—My friend Mr. Wright, who is one of our most experienced and successful rearers of Lepidoptera, has called my attention to the very singular manner in which the female of *Iodis vernaria* deposits her eggs, which are somewhat oblong in circumscription, and very flat. The first is deposited on a twig of the food-plant, and then another laid on this, and others still above this, until a little pile of twelve or fourteen stands out at right angles with the twig, like a spur or thorn: under a lens they much resemble a stack of cheeses carefully piled one on another; in some instances these piles consisted of only three or four, and twelve or fourteen was the highest number observed.—*Edward Newman.*

243. *Description of the Larva of Fidonia carbonaria.*—The eggs are laid in *Betula alba* (birch), *Salix cinerea*, and perhaps some other species of *Salix*, on the leaves of which the larvæ feed: the eggs were obtained by Mr. James Hardy, of Hulme, from an impregnated female taken by his son in the Rannock district. The larvæ were full-fed on the 12th of July, when they rested in a nearly straight position on the leaves, preferring the under surface: if annoyed they fell from their food-plant, and remained motionless, still retaining a nearly straight position. Head subporrect, slightly narrower than the 2nd segment, but never received into it: body uniformly convex above, somewhat dilated at the sides, where it has a very distinct undulated skinfold below the spiracles: it has no prominent humps, but a double series of minute dorsal warts, each of which emits a bristle; there are other bristles on the side below the spiracles. Colour of the head dull brown, the face variegated with whitish brown: body with the dorsal surface dingy wainscot-brown of two shades, disposed in very obscure rivulet stripes; this dorsal surface is bounded on each side by the skinfold, which is very pale, and where it meets the skinfold it is much darker;

its darker margin coming in immediate proximity with the pale skinfold, makes the latter more conspicuous: spiracles pale, with black rings: minute dorsal warts black: ventral slightly paler than the dorsal surface; a rather broad medio-ventral stripe still paler, and a narrower pale stripe on each side between this and the skinfold: legs and claspers of nearly the same colour as the ventral surface. Changes to a pupa on the surface of the earth among dead leaves. I am indebted to Mr. Hardy, as above mentioned, for a supply of this larva.—*Edward Newman.*

244. *Sterrhia Sacaria* near Worthing and near Brighton.—We learn from the 'Entomologist's Monthly Magazine' that Mr. Alfred Kirby took a specimen in the salt-marsh at Hove, near Brighton, on the 18th of July; and Master W. J. Wilson another, a rather damaged female, at West Tarring, near Worthing, on the 19th of August.—*Id.*

245. *Sterrhia Sacaria* at Plymouth.—I had the pleasure of capturing, on the 6th of September, a specimen of *Sterrhia Sacaria*. I found it in a waste place overrun with thistles, about 3 p.m.: the weather at the time was very fine.—*G. C. Bignell; 8, Clarence Place, Stonehouse, Plymouth, September 18, 1865.*

246. *Bombyx Trifolii* at Morice Town, Devon.—I beg to offer a few remarks regarding the food-plant of *Bombyx Trifolii*. The larvæ used to be very plentiful on the slopes of Whitsand cliffs, Bovisand, &c., in April. The young, bright yellow larva is most commonly found on fine grass, eating, as you say (Entom. 291), from the top downwards; but as they grow to about two-thirds their size they leave the grass, and feed almost exclusively on *Ornithopus perpusillus* (bird's-foot trefoil). I have bred great numbers of them, and find they will eat oak, willow, bramble, furze and grass; but I was always, without exception, more fortunate in breeding the imagoes from those that were fed on bird's-foot trefoil than on any other plant. I am acquainted with a person, living near this place, who, from feeding them on different grasses, starved them to death, as when trefoil failed he did not procure more. They will not thrive on clover of any sort.—*John S. Dell; 121, Navy Row, Morice Town, Devon, October 2, 1865.*

247. Exceptional Seasons.—I fully concur with you that

there are exceptional seasons with insects as well as plants : I yesterday saw in our park three laburnum trees in most beautiful flower, bright yellow bunches just as in May and June.—*J. S. Dell.* [At Chatham there is a horse-chesnut, and on the Jamaica Level, near London, a pear tree, this 6th of October, 1865, in full bloom.—*E. Newman.*]

248. *Larentia salicaria* and *Camptogramma fluviata* in *South Wales*.—I have met with two examples of the former insect in this neighbourhood—one in the present year, on some mountain land near here ; the other on a previous occasion, at light. They do not appear to differ from the Scotch specimens. On the 24th May last I found a male *Camptogramma fluviata* dead in a room where light had been exhibited on the previous evening, by which I presume it must have been attracted.—*John T. D. Llewelyn, Penllergare, Swansea, in Ent. Mo. Mag.*

249. *Notodonta bicolor* in *Staffordshire*.—Mr. Chappell, of Sheffield St., Hulme, Manchester, states incidentally, in a note addressed to the editors of the ' *Entomologist's Monthly Magazine*,' that, in company with his friend Mr. Charlton, he took six specimens of *Notodonta bicolor* in Burnt Wood, Staffordshire : no further information is given ; it would have been very useful to Entomologists had Mr. Chappell given the date, and some account of the circumstances under which these rarities were obtained.—*Edward Newman.*

250. *Is Notodonta dromedarius double-brooded?*—On the 17th of last July I beat a larva of this insect ; it was then about an inch long : after keeping it for about ten days (in which time it grew another half-inch) it went down to earth, and on the 16th of August I was surprised to find a fine specimen of the perfect insect in my breeding-cage. Is this not rather an uncommon occurrence, or is the insect really double-brooded ? — *W. Watkins ; 414, Oxford Street, London, September 22, 1865.*

251. *Xylomiges conspicillaris* and *Acronycta Alni* at *Worcester*.—I have captured a specimen of *Xylomiges conspicillaris* and one of *Acronycta Alni* at sugar. Of the commoner things, *Hadena Genistæ* has been abundant, and I have taken several specimens of *H. adusta*, *H. thalassina*, *H. suasa*, *Mamestra anceps*, *Leucania Comma*, &c. ; indeed Lepidoptera swarm at sugar this year.—*George J. Hearder, Powick, near Worcester, in Ent. Mo. Mag.*

252. *Erastria venustula* at Epping Forest.—This insect has again made its appearance at Epping Forest. On the 5th of July I was at Loughton, and took a single specimen, beaten from a low beach-bush: a few specimens were also taken by other Entomologists on the same day. It has not, I believe, been uncommon this year, as at least two dozen have been taken to my knowledge.—*S. A. Davis, jun., in Ent. Mo. Mag.*

253. *Lepidoptera* near Leominster in 1865.—I have taken the following Lepidoptera near Leominster this summer:—*Brephos Notha*, *Trachea piniperda*, *Tæniocampa leucographa*, *T. opima*, *T. Populeti*, several *T. gracilis*, *T. miniosa*, *Xanthia aurago*, *Xylina semibrunnea*, *Sphinx Convolvuli*, *Eupithecia consignata*, *E. dodoneata*, *Colias Edusa* (not seen in Herefordshire since 1859).—*E. S. Hutchinson; Grantsfield, Leominster, September 26, 1865.*

254. *Method of keeping Pupæ of Lepidoptera.*—Possibly my method of keeping pupæ may be new to many Entomologists, and perhaps you may think it desirable to draw attention to it through the pages of the 'Entomologist.' I should particularly like to know whether the substance I use has been tried by other Entomologists. I keep all my pupæ that I obtain by digging, in partially-decayed cocoa-nut refuse, mixed with about one-fourth the bulk of pure sand. This substance I prefer to soil, as being perfectly free from insects, and a much better non-conductor than soil, much lighter, and free from any vegetable fungus: I keep my pupæ in common flower-pots about three-parts full of this substance, and buried from half an inch to two inches in the soil, according to the size of the pupæ. Judging from the condition in which I find pupæ in a state of nature, I conclude they are more likely to suffer from any extreme of moisture than dryness; at the same time I mean to damp mine occasionally (perhaps once a fortnight during the autumn and winter), by watering the substance in which they are placed with an ordinary watering-pot. The bottom of each pot is covered with a piece of slate or oyster-shell, fitting close enough to prevent worms, &c., getting into the pot, but admitting any superfluity of moisture freely to pass away. Each pot is covered with perforated zinc, thus securing them from the attacks of mice, &c., while air is freely admitted to them.

These zinc covers I make myself, turning down three or four projecting pieces over the rim of the pot, so as to prevent their getting moved by accident, and the imago escaping on transformation. At present I keep all my pupæ in an airy potting-shed with a north aspect, but in the depth of winter I think of transferring them to my greenhouse.—[Rev.] *W. Nickisson*; *Church Aston, near Newport, Shropshire, September 19, 1865.*

255. *The Celery-fly at Manchester.*—An insect is doing a serious injury to my celery, and, I find, is equally destructive all round within five miles of my residence: it is a pale greenish maggot, and feeds between the two cuticles of the leaf, making large blotches. The sparrows are doing their best to rid us of this plague, and if any member of a sparrow-club were to see them at work I think he would spend the remainder of his natural life in sackcloth and ashes.—*A. G. Latham*; *Weaste Hall, Pendleton, Manchester, September 18, 1865.*

256. *The Celery-fly.*—I believe that the celery-fly is *Trypetta Heraclei* of *Linnæus*, which is now named *Acinia Heraclei*.—*Francis Walker*; *The Avenue, Church End, Finchley, September 25, 1865.*

257. *The Celery-fly.*—After having made the inquiry of Mr. Walker, and pending his reply, I had the good fortune to procure a perfect insect, and it proved to be the species named *Euleia Onopordinis* of Mr. Walker's invaluable Monograph of the family, published in the 'Entomological Magazine' (vol. iii. p. 57, fig. 30): the description and figure leave nothing to be desired; so that I am induced to believe that at least two species are destructive to the celery. Mr. Walker having, with his unvarying kindness, given me the preceding information, I am bound in courtesy to publish it, although differing from my own experience. I have now before me the larva, pupa and imago, and find, by a reference to *Curtis* ('Farm Insects,' p. 419), that he has given the insect the name of *Onopordinis*. Mr. Curtis adds that the larva is attacked by two parasites, *Alysia Apii* and *Pachylarthrus smaragdinus*, which no doubt combine with the sparrows in keeping this destructive insect in check.—*Edward Newman.*

258. *Scarcity of Wasps.*—The immense falling off in the number of anticipated wasps' nests which has taken place,

and which appears to be general, is most extraordinary. In the early part of the season queen wasps absolutely swarmed in this neighbourhood, and hundreds of nests must have been commenced : in fact I myself observed no less than thirty-five in one day ; these were situated in chambers I had previously formed in the earth for the express purpose of obtaining nests : I made about seventy in all, and on going round, on the 28th of April, to examine them, I found, as above stated, that thirty-five had become tenanted ; but one nest after another became deserted, some in a few days after their commencement, others at periods more distant, but none attained to a size larger than about that of an orange. I have found altogether sixty nests, but at the present time only four of the number are progressing ; the others, as fast as they became deserted, I added to my collection. Two of the four above-mentioned I removed a few weeks ago, and placed them in rooms of an unoccupied house I have used as an establishment for wasps for some years past ; the work is being carried on, but I am much mistaken if symptoms of decline have not manifested themselves in both these nests within the last two or three days, as also in one still occupying its original situation under ground. The other one, situated in the thatch of an out-house, I have not lately had an opportunity of observing, but I question whether in a few weeks there will be a single nest to be found, owing probably to some great peculiarity in the season, which, however fine and to all appearance favourable to insect life in general, has certainly had a baneful effect upon this particular family, the social *Vespidae*. That earwigs, which swarm to an extent I have never before witnessed, centipedes, woodlice and ants, have been in some degree instrumental in causing the destruction of nests, especially during the earlier periods of their formation, cannot be denied ; still that would hardly account for the almost utter destruction which appears to have taken place.—*S. Stone ; Brighthampton, Witney, August 3, 1865.*

259. *Note on Vespa norvegica of Fabricius, the Vespa britannica of Leach.*—As some account of the economy of this insect may be interesting, I send this note for the use of those who may at some future time write its history. In the month of April I observed a large wasp (which I suspect was

a female) prying into and among the branches of the gooseberry-bushes. Day after day, for at least a week, I thought she was hunting after insects, but found her object was only to find a convenient site for her nest. I afterwards observed her in company with two or three other wasps, not so large as herself. Having something to attend to for a few days, I neglected looking after them; but when I again inspected the locality I found a compact little nest, about the size of a duck's egg, with an entrance at the bottom: the entire colony consisted of about six: the nest was a very slight fabric, made from the scrapings of wood mixed with the saliva of the wasp: the little colony was very industrious, flying in and out from early morn till dewy eve: in a short time I observed the nest to increase in size and the inmates to get more numerous; but in what way they enlarged the nest I could not discover. One day I made a dent in the nest with my fingers, which caused a great consternation to the inmates, who came rushing out at the bottom of the nest, but, finding no one to attack, they soon retired to the interior. The following day the dent I had made in the side of the nest was forced out again, but by what means I was at a loss to discover: the nest kept on increasing in size, and the colony continued to get more numerous: by the end of July the nest was the size of a half-pint basin, and its inmates amounted to about fifty or sixty in number: by the middle of August the colony began to stray away, and by the end of the month the nest was deserted, and on slightly touching it it fell to-pieces. I observed some of the wasps lingering about the garden for a few days, and then none were to be seen. Can Mr. Smith give me any information as to what becomes of the wasps at this early period of the year? and I should like also to know by what means they enlarge the nest. This species does not seem to be very spiteful, as I disturbed them very often, and never got stung. — *H. J. Harding; Deal, Kent, September 4, 1865.*

260. *Egg-parasite on Pygæra bucephala.* — I send you a batch of the eggs of *Pygæra bucephala*, nearly the whole of which have been destroyed by a parasite: it is the first time I have observed the eggs of this species so attacked. — *J. Pristo; Whippingham, Alverstone, Isle of Wight.*

261. *Egg-parasite on Pygæra bucephala.* — I think that

the little fly produced from the eggs of *Pygæra bucephala* should be considered as *Telonomus Phalænarum*, and as the *Teleas Phalænarum* of Nees ab Esenbeck (Hym. Ich. Affin. Mon. ii. 287). I believe that I described the same species as *Telonomus Belenus* (Ent. Mag. iii. 352), and cited *Teleas Phalænarum*, with a query, as synonymous. The *Telonomi*, as far as known, are all egg-parasites, and there are several closely-allied species: when writing on the genus I found the previously described species difficult to recognize.—*Francis Walker*; *September 25, 1865.*

262. *Calosoma inquisitor* near *Burton-on-Trent*.—In a wood near here I was fortunate enough, early in June last, to take about thirty specimens of this insect, and could have taken more. I found several in the hot sunshine, and also just at dark, moving about freely on the stems of the oak trees, but did not observe many during the daytime high up on the branches, as described by Mr. F. Plant in the 'Zoologist' some years back.—*J. T. Harris*, 31, *Litchfield Street, Burton-on-Trent*, in *Ent. Mo. Mag.*

263. *The Larva of the Cockchaffer and the Cattle Plague*.—The rooks and starlings are visiting us in such numbers as to threaten the destruction of our grass-land: they pull up the little tufts of grass, some that look a little different from the rest, and leave them on the surface, where they die; and these unsightly objects may be seen coursing over the pastures by myriads when there is the slightest breeze. I have had the turf turned up in half a dozen places, to see the extent of the mischief, and find a number of droll-looking grubs, which no one in this part of the country has ever seen before, and which I fancy are connected with the cattle plague: will you examine and report? I see in the last 'Entomologist' it has been attributed to an insect. Can you suggest a remedy for the plague of rooks and starlings?—*James Willis*; *Stockbridge*.

[The larvæ which accompanied this letter are unmistakably those of a cockchaffer, but I incline, from their small size, great numbers, and habitat in meadows, to believe them to be those of *Amphimalla solstitialis* rather than *Melolontha vulgaris*. I imagine they can have no connexion with the cattle plague. The rooks and starlings are doing the greatest service in their endeavours to destroy them: these birds are essentially the farmers' friends.—*Edward Newman.*]

264. *On Choleva angustata*, Fabr., and its Varieties.—The different forms of this species were first separated by Kraatz, on the shape of the coxae in the male; Murray, however, in his very careful Monograph, has again united them under one head. Characters drawn from these parts are confessedly inconstant, but being, as they are in this case, accompanied by other slight but fixed differences, we cannot, I think, refuse to admit them as species, though of a subordinate degree of value to other species, or, as they have been termed in Botany, cognate species. The general appearance is a good deal alike in the four species, but the male characters readily separate them: M. Brisout de Barnevile (Gren. Cat. Col. Fr. 8) has pointed these out with his usual aptitude, from which notice I extract the following diagnoses:—

1. *C. Sturmii*, Bris. — Abdomen with segments 2—4 marked with a slight impression; posterior coxae short, simple; femora with a small tooth before the middle. I have one specimen, from Mr. Janson's collection, taken near London.

2. *C. angustata*, Fab., Bris.—Abdomen with segments 3—5 deeply impressed; coxae short, pointed, inner margin produced. *Fem.*—Elytra terminated with a short spine.

3. *C. cisteloides*, Fröhl., Kr.—Abdomen with segments 2—5 lightly impressed; coxae short, like the preceding, but produced into a curved spine on the inner margin. *Fem.*—Elytra simple.

4. *C. intermedius*, Kr., Bris.—Abdomen with segments 4—5 lightly impressed; coxae long, gouge-shaped. *Fem.*—Elytra simple. One specimen, from Mr. Janson's collection, taken at Finchley.

The males may be always known by the dilated anterior tarsi and curved intermediate tibiæ. The two other species of the subgenus, *C. agilis* and *C. spadicea*, are unmistakeable, the latter by its deep strong punctuation and simple coxae, and the former by its singularly curved male tibiæ, and thorax widest at the base.—*G. R. Crotch; University Library, Cambridge.*

265. *Atomaria ferruginea* and other Coleoptera at Birdbrook.—During a short visit at Birdbrook, in Essex, last August, I was fortunate enough to capture fourteen specimens of the very rare *Atomaria ferruginea*, which I think

has only hitherto been taken most scantily by Messrs. Clark and Wollaston. I also had the satisfaction of finding out that it is probably one of that singular tribe of Coleoptera which are denizens of the ants' nests. I discovered a very old nest of *Formica fuliginosa*, in an old tree well perforated by the *Cossus* caterpillar, a combination which rendered it very prolific. I dressed it up with grass, moss, &c., and took from it a large number of species, including *Haploglossa gentilis*, *Thiasophila inquilina* or *Euryusa Kirbyi*, whichever it is to be, *Homalota confusa*, *Myrmidonias* various, all the usual *Cossus* things, and lastly, the aforesaid *Atomaria ferruginea*, which came only from the heart of the tree, where there were most ants. I was so surprised at this, that I searched most carefully all round the tree, but found *none*. I have had the good fortune to take this insect in two other localities this year, but accidentally only and by sweeping—once at Mickleham, and also in a most favourite spot of mine near Surbiton, which has afforded me about eight specimens at different times. There is an ants' nest in the place, but I have not been able to investigate it: I dare say the *Atomarias* will be found to have connexion with it. The same locality has supplied me with a large number of good insects, amongst which I may mention *Ceuthorynchus setosus* and *viduatus*, *Eutheia plicata*, *Agaricophagus cephalotes*, *Anisotoma parvula*, *Hydnobius strigosus* and *punctatus*, *Symbiotes latus*, *Mordellistena pumila*, *Anaspis thoracica*, *Silusa rubiginosa*, *Epurea melina* and *longula*, *Bruchus luteicornis*, and many others.—*J. A. Power*; 52, *Burton Crescent*, September 23, 1865.

266. *Dromius fasciatus* at Littlington, near Royston.—In August I also spent a few days at Littlington, near Royston, a thoroughly inland village, between London and Cambridge. One day I was beating the thatch of an old cow-house, in search of the Hemipterous Ploairias, when I was astonished to find, running about in my umbrella, a whole host of *Dromius fasciatus*, which were manifestly breeding there, for they were many of them immature. I had always imagined this to be a littoral insect, abundant in the shingle at Brighton, Southend, &c., and I never saw it before except under the influence of sea air. Mr. Sharp tells me that he finds it near Edinburgh, but that is not far from the salt

water, and very differently circumstanced to this inland village. Stephens and others all speak of it as found on the coast. It was in profusion.—*John A. Power; September 23.*

267. *Abundance of Cynthia Cardui and Macroglossa Stellatarum at Instow.*—I was at Instow yesterday, and saw three large plants of the Michaelmas daisy, growing close together, completely covered with the painted lady butterfly; there must have been at least from sixty to a hundred, and all bright, fresh specimens: they looked very pretty in the sun. The painted lady is a scarce insect about here most years, and found only in certain localities; but now they are to be seen everywhere, as also the humming-bird hawk-moth.—*Murray W. Mathew; Raleigh, Barnstaple, October 6.*

268. *Colias Edusa in Ireland.*—I have this day had the good fortune to capture two fine specimens of *Colias Edusa* (females), with not a scale off their wings.—[Miss] *Martha Ellison; Newtown, Mount Kennedy, Co. Wicklow, Ireland, September 28, 1865.*

269. *Argynnis Lathonia in Norfolk.*—A most splendid example of this rare species was captured by Mr. John Perry, on Monday, the 2nd instant, at Plumstead, near Norwich. He exhibited his fortunate capture, during the same evening, at the Meeting of the Norwich Naturalists' Society, where I had opportunities of observing it. This is the second instance on record of the occurrence of this species in Norfolk during the present season. The former instance is recorded in the 'Science Gossip' for October, by Mr. Glasspole, it having been captured by a young gentleman in the parish of Ormesby, St. Michael, during the month of September.—*T. E. Gunn; Norwich, October 9, 1865.*

270. *Acherontia Atropos near Woodbridge.*—You may be interested in the fact that this year we have caught and reared about a dozen of the death's-head moth in this village, in a perfect state. The larvæ were very numerous, and many pupæ were dug up in potato fields.—[Rev.] *Walter E. Browne, Great Bealup, October 11, 1865.*

271. *Acherontia Atropos at Henley-on-Thames.*—I think *Acherontia Atropos* must be more common than usual this year. I have received no less than six specimens during the past week.—*Charles E. Stubbs; Henley-on-Thames, October 7, 1865.*

272. *Acherontia Atropos near Luton*.—The larvæ of *Acherontia Atropos* have been frequently met with in this neighbourhood this season. I send this notice because none of the correspondents who reported concerning it in the last number of the 'Entomologist' reside in this part of the kingdom. The notion of its being a locust prevails among the lower classes here, as well as in other places.—[Rev.] P. H. Jennings; *Lilley Rectory, Luton, October 11, 1865.*

273. *Acherontia Atropos*: *males and barren females bred*.—Out of seven larvæ I had of this moth during July, and which buried in due course, five have emerged in the perfect state during September, two males and three females, perfectly eggless. Another of the latter kind, caught on the blind of an open window, was brought to me to-day.—J. Merrin; *Gloucester, October 3, 1865.*

274. *On the mode in which Acherontia Atropos makes its Noise*.—Having bred many death's-head moths, on hearing one make the noise I minutely examined it, and discovered an aperture under the superior wing, through which (by respiration) it makes the noise. The aperture is covered with a set of hairs, which the moth opens and depresses at will. When making the noise the hairs are thrown open, and form a trumpet-shaped opening like the bottom of a flageolet. When the noise ceases the hairs are depressed, and lie even with the body.—E. A. Johnson, *Percy Cottage, Northumberland Park, in the 'Field' Newspaper, October 14, 1865.*

[This is extremely interesting, but requires confirmation: as stated by Mr. Johnson it would appear that, as in ourselves, there is a connexion between the organs of respiration and voice,—a fact not yet ascertained as regards tracheal respiration.—Edward Newman.]

275. *Sphinx Convolvuli at Ramsgate*.—While staying at Ramsgate I had a very faded specimen of *Sphinx Convolvuli* brought me on the 6th of September: it was taken at rest on a post. This insect does not seem to have been so abundant this year as might have been expected.—Edwin Curzon; *Grove House, Tooting, Surrey.*

276. *Barren Females of Acherontia Atropos*.—In a communication addressed to the 'Entomologist,' last month, on this subject, Mr. Andrews writes (Entom. 296):—“Are we to understand from Mr. Newman's life-history of the species

that all the October moths are barren females, or only that all the females appearing at that time of the year are barren? If the former, is not this the only species of Lepidoptera in which the female makes her appearance first?" It is upon the latter of these two questions that I desire to make an observation or two. The subject as to the prior appearance among the Lepidoptera of the male or female is an interesting one. I allude, of course, to insects when in captivity. Mr. Andrews seems to think that the fact of the female first emerging is something unheard of. In supposing this he makes a great mistake. It is by no means an uncommon occurrence; on the contrary, so far as my experience goes, it is the rule rather than the exception. I have often regretted that in former years, when I had great numbers of pupæ, I did not pay more attention to this question. I have nevertheless a clear recollection of the fact being as I have stated. Having had some correspondence on this subject with my friend Mr. Birchall, who seemed to think it quite a matter of course that the *male* should make his appearance first, I took down, at the commencement of this year, the respective times of the appearance of the males and females of a few species which I had in pupa. The result, as far as it goes, is interesting. I should observe that the pupæ were kept in a warm room at Torquay, which accounts for the unusually early appearance of some of them.

February 25. *Smerinthus Tiliæ*. Female.

March 1.

14.	"	"	"
"	"	"	"
"	Larentia multistrigaria.	Three males,	six females.
"	19. Endromis versicolor.	Two males.	
"	22.	"	Two females.
"	26. Cidaria suffumata.	One female.	
"	28.	"	"
"	"	Eupithecia centaureata.	One female.
"	29.	Cidaria suffumata.	Male and female.

April 5. *Clostera anachoreta*. One female.

"	"	Eupithecia expallidata.	„	"
"	6.	C. anachoreta.	"	"
"	7.	Cidaria silacea.	One male.	
"	"	Eupithecia vulgata.	One female.	
"	8.	C. anachoreta.	One male.	

April 8. *Cidaria silacea*. One male, one female.
 " 9. *Notodonta trepida*. One female.
 " 11. " " Three females.
 " 12. " " Two males.
 " 15. *Ephyra pendularia*. One male.
 " 17. " " One female.
 " 20. *Arctia Urticæ*. One female.
 " 21. " " Two females.
 " " *Acronycta Ligustri*. One male.
 " 22. *Arctia Urticæ*. Two females.
 " 23. *Papilio Machaon*. One female.
 " 24. *Eupithecia valerianata*. One female.

From the foregoing it will appear that in ten species the females emerged first; in four the males; while in one instance—*multistrigaria*—both appeared on the same day. I commend this very interesting subject to your readers, and invite them to supply similar tables, or, if unable to do so now, to take it in hand next spring.—[Rev.] *J. Greene* ; *Cubley Rectory, Uttoxeter, Staffordshire*.

277. *Chærocampa Celerio* near *Hull*. — In the year 1846 I recorded the capture of this insect at Brantingham, near this place, by Mr. Kingston. This gentleman writes me that he took a splendid male again on the 29th of September. It was hovering over a bed of geraniums, at twenty minutes past six o'clock in the evening.—*G. Norman* ; *Hull, October 1, 1865*.

278. *Description of the Larva of Chærocampa Celerio, found at Epping*. — A person residing here brought me a larva of *Chærocampa Celerio* on the 7th instant; he found it on the ground in the garden. I have given it vine, *Epilobium* and *Fuchsia*, but it has not eaten anything, and I have no doubt it had begun to spin before it was found, and was changing colour: it has spun a few lumps of earth over itself in one corner of the cage. It was dirty brown, thickly covered with short black lines: the 2nd, 3rd and 4th segments are immaculate; there is a large ocellus on the 5th segment, and a smaller one on the 6th; from this segment a pale lateral stripe runs into the caudal horn: the under parts below the spiracles were not freckled with black; but the larva was too near its change to a pupa for a good description to be made of it.—*H. Doubleday, Epping, October 11*.

279. *Macroglossa Stellatarum*.—This lively moth has been very abundant here during August and September. I have frequently seen it in the streets of Gloucester, hovering over jasmin-blossoms in front of houses; one morning in August even during a shower of rain. A few days since I saw one attracted to a large gaudily-printed poster on a board against a wall, on which it ultimately settled, and remained some time, apparently enjoying the sunshine and the odour of the printer's ink.—*J. Merrin; Gloucester, Oct. 3.*

280. *Does Macroglossa Stellatarum usually appear in the Imago in the Autumn, and so hibernate? and is it double-brooded?*—I was fortunate enough in securing, early in September, some fifty of the larvæ, on *Galium verum*, at Scarborough, and by the end of the month they had all become pupæ. These pupæ I placed in my cage, expecting to see the perfect insects in May next, but was much surprised yesterday (October 11) at finding a dozen fine specimens, just emerged, and stretching their rich velvet-looking wings at the top of the cage! The room in which they are placed has a north aspect, and has had no fire in it since March last. I may mention also that this Sphinx has appeared in unusual numbers in this locality; I have seen as many as seven or eight on the flowers in my garden at one time this season. I do not remember it here before.—*[Rev. Sir] C. R. Lighton, Bart.; Ellastone, Ashbourne, Derbyshire, August 12, 1865.*

281. *Macroglossa Stellatarum two winters in Pupa?*—My experience does not corroborate Mr. Clifford's suggestion on this subject (Entom. 298), as I never had a specimen pass a single winter in the pupa state, but corresponds with that of Sir C. R. Lighton: the perfect insects have, with me, invariably emerged in the late summer and autumn, the early ones taking leave of me through an open window, the later ones crawling up into a corner of the breeding-cage or the cornice of a sitting-room, and remaining perfectly quiescent throughout the flowerless season: for frost and snow and east winds they have no partiality.—*Edward Newman.*

282. *Macroglossa Stellatarum settling on Coal.*—This insect has been very common here and round about Maidstone the last three months. I saw it also on geraniums last week at Enfield. I observe Mr. Clifford's remarks (Entom. 298)

on its being seen fluttering over coal: I have noticed it frequently settling on that mineral, and remaining motionless for some minutes.—*David John French; Chatham, October 12, 1865.*

[Two other correspondents have written in confirmation of Mr. Clifford's observation, which to me was altogether novel.—*Edward Newman.*]

283. *Bombyx neustria* near *Wimbledon*.—I picked up, this summer, a few larvæ of this once notorious cockney, but now country gentleman, near Wimbledon, in Surrey, but they were nearly all ichneumoned.—*John R. S. Clifford; 21, Robert Terrace, Chelsea, October 2, 1865.*

284. *Scarcity of Wasps.*—I see a notice (Entom. 303) from Bournemouth on the scarcity of wasps this autumn. Here, in the spring, the queen wasps abounded in a manner I never before noticed: they swarmed over the gooseberry-bushes when in flower, and many hundreds we had destroyed. I remarked that when successfully "netted" we could go on capturing them for a length of time, but if we missed one, or one escaped out of the net, it seemed to sound a note of alarm, for all left the spot at once for a time. As the season advanced the wasps disappeared, but during June and July *Melia sociella* was most abundant, and has probably caused this diminution: I believe their larvæ live in wasps' nests. This autumn we scarcely see a wasp.—*E. S. Hutchinson; Grantsfield, Leominster, October 3, 1865.*

285. *Wasps at Ilkley.*—Mr. Smith remarks (Entom. 303) that there are no wasps at Bournemouth this year. Visitors to this place cannot boast of such a happy exemption: during the last month they have been so abundant as to be a serious nuisance, rendering the out-door life, to which the delicious weather tempted, a dubious pleasure for timid persons. Sugar attracted them in great numbers; on three trees sugared for *Noctuæ* last night I counted upwards of eighty wasps this morning. At the last Meeting of the Entomological Society, I see Mr. Baly stated that wasps were abundant this autumn at Aberdeen: it would be interesting to learn whether the scarcity of which Mr. Smith speaks has really been general, or only confined to certain districts. Perhaps some of your correspondents will inform us.—*Edwin Birchall; Ilkley, Wharfdale, October 11, 1865.*

Duplicates and Desiderata.

Duplicates — I have several duplicates of the following insects:—*G. Rhamni, C. Edusa, A. Paphia, A. Adippe, A. Euphydryas, V. Cardui, A. Galathea, S. Semele, T. Quercus, L. Corydon, L. Alsus, S. Alveolus, T. Tages, H. Actæon, S. Tiliæ, C. Elpenor, M. Stellatarum, P. Statices, E. Jacobææ, C. Dominula, L. Dispar, E. Lanestræs, B. Neustria, B. Quercus, E. Apiciaria, G. Cytisaria, A. Imitaria, F. Atomaria, X. Polyodon, T. Janthina, H. Stagnata, and A. Flexula.* I have one of each of the following continental specimens:—*P. Podalirius, P. Apollo and P. Virgaureæ*; also several very fine and lively pupæ of *Atropos*, for which I should be glad to receive offers. *Desiderata*.—I give a list of those insects I particularly want:—*S. Convolvuli, C. Porcellus, D. Galii, M. Fuciformis, Z. Æsculi, L. Monacha, E. Russula, B. Rubi, E. Tiliaria, S. Illustraria, G. Papilionaria, T. Fimbria, C. Prasinana, A. Cratægi, L. Sinapis, A. Aglaia, A. Iris, &c.*—*[Miss] Bessie Dibben; Bishopstone, Salisbury.*

Duplicates and Desiderata.—I have good, well-set, bred specimens of *D. Coryli, E. Venosata*, and many other duplicates. Persons wishing for these must send their marked list, and state what they have to offer.—*Bernard Hartley; Park View, Pontefract.*

Desiderata and Duplicates.—I should be glad to receive from any reader of the 'Entomologist' pupæ (male and female) of *Endromis versicolor*. Being anxious to establish the species in this locality, if possible, I wish to breed them in some numbers, and then liberate them in the woods here. I can send good specimens of *Colias Edusa, Cynthia Cardui, Argynnus Paphia, A. Aglaia, A. Adippe, Melitæa Athalia, A. Artemis, Lycaena Arion, L. Agestis, Heliophobus Hispidus, Aspilates Citraria, C. Gemmaria* (male and female), &c., all taken by myself this summer, and in really good condition.—*Charles Rogers; 10, Courtenay Street, Plymouth, Oct. 10.*

Change of Address.—Edwin Birchall, to College House, Horton Lane, Bradford.

To Correspondents.—Several papers are again postponed.

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No. 22.]

DECEMBER, MDCCCLXV.

[PRICE 6D.

Contributions to the Natural History of Australian Ants.

By BENJAMIN T. LOWNE, Esq., M.R.C.S. Eng.

(Concluded from p. 280).

13. *Formica minuta*, Lowne. — Worker: length 1 line. Shining black, except the first joint of the antennæ and tarsi, which are testaceous. Head very large, much broader than the thorax, emarginate behind. Mandibles rufo-ferruginous, covered with scattered silky hairs. Thorax elongate, with a deep strangulation between the meso- and metathorax, obscurely punctured. Scale of the peduncle ovate, its upper margin entire. Abdomen ovate.

I found this insect amongst dried sticks and bark, whilst searching for Coleoptera.

14. *F. purpureascens*, Lowne. — Worker: length 2 lines. Rufo-piceous, with a purpureous tinge, especially during life; abdomen black. Head nearly twice as broad as the thorax, emarginate behind. Antennæ almost testaceous. Head and thorax finely rugose. Thorax elongated, with a deep constriction between the meso- and metathorax. Scale of the peduncle ovate and pointed above. Abdomen ovate, the apical margins of the segments piceous, thinly covered with pale pubescence. Tarsi testaceous.

Female 4 lines long, piceous, with rufo-piceous antennæ and tarsi. Head scarcely so broad as the thorax. Thorax elongate-ovate. Scutellum convex. Head and thorax thinly clothed with a pale silky pile. Abdomen nearly smooth, the apical margin of the segments rufo-piceous. Wings hyaline, with piceous nervures.

These insects make their nests in the ground or in decaying stumps of trees.

15. *F. inaequalis*, Lowne. — Female nearly 3 lines long. Head, thorax and abdomen dark brown above, with a few

coarse hairs scattered over them, much lighter beneath; antennæ, mandibles and clypeus coloured like the under side of the body, pale ferruginous. Head subquadrate, emarginate behind. Ocelli very large and glassy bright. Antennæ elongate, setaceous. Wings fusco-hyaline, with the nervures of a darker tinge; the nervures dividing the submarginal cells incomplete posteriorly, so that the cells communicate with each other. Thorax transversely wrinkled on the disk. Abdomen with the apical margins of the segments broadly pale fuscous, wrinkled longitudinally. Scale of the peduncle subcylindrical and elongate.

Male less than a line long, shining piceous, paler beneath, with coarse hairs scattered over it. Disk of the thorax opaque. Flagellum and tarsi ferruginous. Head narrower than the thorax. Eyes and ocelli very large, the latter glassy bright. Antennæ setaceous, nearly or quite as long as the insect. Mandibles, clypeus and sides of the face ferruginous. Scale of the peduncle as in the female.

I took these insects in copulation: they inhabit the nests of *Ponera metallica*. I never found the workers. The great difference in the size of the sexes, as well as in their colour, is very remarkable.

Genus *ACANTHOLEPIS*, *Mayr.*

A very remarkable genus, forming a connecting-link between *Formica* and *Myrmica*. I collected three species of this genus, all undescribed, and all differing from the European species in the complete absence of ocelli in the workers. They are Formicidæ, with six-jointed maxillary and four-jointed labial palpi, carinæ over the insertion of the antennæ, and with the thorax more or less marked with tubercles or prolonged in blunt tubercular spines.

16. *A. tuberculatus*, Lowne.—Worker 2 lines long. Rufopiceous. Head twice as broad as the thorax, subquadrate, deeply emarginate behind. Antennæ as long as the head and thorax, inserted in a deep fossa. Flagellum thickened towards the apex, and covered with short hairs (as in *Ponera*). Eyes ovate, inserted near the antennæ. Ocelli obsolete. Thorax narrowed anteriorly, almost globose above, with sharp slightly recurved lateral margins, separated from the mesothorax by a deep groove. Mesothorax rounded above,

and terminating posteriorly in three small blunt tubercles, the middle one the longest. Metathorax separated from the mesothorax by a strangulation, narrowed in front and rounded above and behind, with a bright glassy spot, like an ocellus, on either side. Scale of the peduncle large, ovate, with its upper margin entire. Metathorax and abdomen punctured. Abdomen subglobose.

On the ground amongst loose sticks and leaves.

17. *A. mamillatus*, Lowne.—Worker less than 2 lines long. Obscurely rufo-piceous. Head broader than the thorax, emarginate behind. Carinæ on the face short. Eyes large, ovate. Flagellum covered with short hairs. Ocelli obsolete in the workers. Thorax narrowed anteriorly, subglobose above, its anterior and lateral margins sharp. Mesothorax separated from the thorax by a slight groove, terminated posteriorly in two small rounded tubercles. Metathorax subglobose above, transversely striated with a few scattered hairs on its sides. Scale of the peduncle ovate. Abdomen globose.

On the ground amongst loose sticks and leaves.

18. *A. Kirbii*, Lowne.—Worker 2 lines long, bright chestnut-red; abdomen shining black. Head broader than the thorax, deeply emarginate behind. Flagellum enlarged towards the apex. Ocelli obsolete. Thorax subglobose. Metathorax flattened laterally and narrowed in front, terminating posteriorly in two long blunt converging tubercles. Head and thorax punctured. Metathorax longitudinally rugose. Scale of the peduncle ovate. Abdomen globose. The whole insect is covered with scattered hairs.

Under loose bark in spring and early summer.

Genus POLYRACHIS.

a. *Maxillary palpi elongated.*

19. *P. Ammon*, Sm. — I found the workers of this species apparently hibernating in small colonies under stones, where they construct no galleries or chambers. The Australian species of this genus remain concealed until summer is well advanced, and I think it extremely probable that later in the summer they may construct a nest of some papyraceous or other material, like *P. nidificans*; of this, however, I have no proof.

20. *P. Latreillii*. — In cracks in stumps, in spring. In

some localities they appear in large numbers, running on the ground and on the trees, in the middle of November. I never saw any nest.

21. *P. Hookeri*, Lowne.—Worker 3 lines long; head and thorax metallic-green, finely shagreened; abdomen black, and legs rufo-piceous. Head as broad as the thorax. Face strongly carinated. Carina overhanging the insertion of the antennæ considerably. Scape of the antennæ rufo-piceous. Flagellum black, with moniliform joints. Thorax rounded above and flattened laterally, narrowed behind; margins acute, slightly recurved. Prothorax with a small spine at each anterior angle. Metathorax prolonged in two long spines posteriorly. Scale of the peduncle furnished with two curved spines, longer than those of the metathorax. Abdomen globose.

As in the other species, I never found any nest. I only found the workers running on the ground.

b. *Maxillary palpi abbreviated.*

22. *P. foveolatus*, Lowne.—Worker: length 4 lines. Black. Head, thorax, and scale of the peduncle pitted with large hexagonal pits. Abdomen clothed with a dense golden pubescence. Legs rufo-testaceous, occasionally piceous. Head narrowed anteriorly. Face with two elevated carinæ. Thorax elongate, rounded anteriorly. Metathorax terminated posteriorly with two acute slightly curved spines. Scale of the peduncle incrassate, unarmed. Abdomen flattened and cordate.

Under stones and on the trunks of trees, abundant. I think their habits are similar to those of *P. Ammon*.

Genus PONERA.

23. *Ponera metallica*, Sm. — A very common species: it excavates decaying stumps.

Genus MYRMICA.

24. *Myrmica longiceps*, Sm.—These ants inhabit sandy places, and construct their nest under ground, throwing up little heaps of sand about six inches in diameter and two or three inches high, with a funnel-shaped opening to the nest in the centre of each, often nearly an inch in diameter: a number of the insects are usually lurking in the opening, but they retreat into the interior at the slightest cause for alarm.

Genus CREMATOGASTER.

25. *Crematogaster pallidus*, Lowne.—Female less than a line long, pale testaceous. Head and mesothorax smooth. Eyes large, ovate and black. Metathorax punctured, flattened above, and armed with two short acute spines. First node of the peduncle punctured and elongate; second node globose and smooth. Abdomen heart-shaped, with a few pale stiff hairs scattered over it. Worker like the female, except that the meso-, metathorax and peduncle are rugose, instead of punctured.

These ants excavate the earth under large stones. I found two species of *Pselaphus* in one nest of this ant: I gave them to my friend Mr. Ramsey, of Ashfield, N.S. Wales, who was engaged at the time in a Monograph on Australian *Pselaphidæ*.

26. *C. piceus*, Lowne.—Worker $1\frac{1}{2}$ line long. Piceous. Head nearly twice as broad as the thorax, almost globose above, and slightly flattened posteriorly. Mesothorax rugose, rounded and broad in front, narrowed behind, with its disk concave. Metathorax narrowed in front, concave above, flattened laterally, and armed with two stout acute spines. First node of the peduncle, viewed in front, broad and rounded at the base, and narrowed upwards, its apex obtuse. Second node subglobose, with a deep longitudinal cleft above. Abdomen heart-shaped, with pale stiff hairs scattered over it.

I never found the nest of this insect.

27. *C. laeviceps*, Sm.—In small colonies under loose bark, apparently making no nest, at least in spring.

Genus MYRMECIA.

28. *Myrmecia gulosa*, Fabr.—These ants throw up a large conical dome of earth or sand, often a foot high, in light soils, with the opening to the nest in the centre. I have observed that they close the entrances in wet weather with leaves. The pupæ are enclosed in cocoons, thus forming a remarkable exception to the general character of the *Myrmicidæ*, which have usually naked pupæ. The chambers in which the pupæ are placed are most often nearly two feet below the surface of the ground. These ants are amongst the most rapacious and numerous of Australian species: they climb trees in vast numbers to attack the great *Anaplognathi*, which they pull down and bury alive in the earth, although in point of bulk the beetles bear very much the same relation

to the ants that an elephant does to man: I have, however, often seen three ants bring one of the largest to the ground in spite of all its exertions. Their sting is very severe, but the pain occasioned is evanescent.

29. *M. pyriformis*, Sm. } Resemble *M. gulosa* exactly in
30. *M. tarsata*, Sm. } habit.

31. *M. nigrocincta*, Sm.—Makes a small dome-shaped hill of earth, and covers it very neatly with small sticks and leaves. This insect is remarkable for the leaps it takes in running, often jumping over a foot of ground at a leap; it also jumps from the trunks of trees upon persons walking near it. Its sting is very severe.

32. *M. picta*, Sm.—I only found a few solitary individuals.

33. *M. urens*, Lowne.—Worker 4 lines long. Black. Mandibles, anterior tibiæ and tarsi, and posterior and intermediate tarsi, pale reddish yellow. Head longitudinally striated. Carinæ between the antennæ not continued so far as the anterior ocellus; posterior margin of the head emarginate. Thorax and first node of the peduncle transversely rugose. Abdomen covered with a cinereous pubescence.

I know nothing of its habits, except that it stings severely.

Genus CRYPTOCEPHALUS.

34. *Cryptocephalus pubescens*, Sm.—In dry sandy places near the sea this insect is very common. These curious little ants live underground, throw up no hill, but make a conical hole in the sand: they carry every fragment they remove to a distance from the nest, and roll themselves up, like many beetles, and lie motionless for a long time, when alarmed or touched.

B. T. LOWNE.

Entomological Notes and Captures.

286. *Do Male or Female Lepidoptera first emerge from the Pupa?*—Mr. Greene's interesting note (Entom. 325) on the prior appearance of the male or female of various species of Lepidoptera shows how needful it is to apply the test of experiment (where possible) to all our opinions, and how apt we are to accept as truth what is only tradition or assumption. Until Mr. Greene surprised me by throwing doubt on the commonly received opinion that the males usually

appeared before the females, I had never heard it called in question: since then circumstances have prevented me from rearing many larvæ; but in the few broods of which I have been able to take note the facts confirm Mr. Greene's view, that in the majority of cases the female is the first to appear. I give the dates of the emergence of five broods—two of *Lithosia caniola*, one of *Orgyia fascelina*, one of *Amphydasis prodromaria*, one of *Dianthoccia capsophila*: in all, except *capsophila*, the female appeared first. I trust some of your correspondents who have had a wider experience in rearing Lepidoptera will furnish notes on the point, as no rule can be laid down from isolated cases.

LITHOSIA CANIOLA, 1864.

July 21st, one female; 22nd, one female; 23rd, three males, ten females; 24th, eight males, five females; 25th, eight males, six females; 26th, five males, four females; 27th, five males, five females; 28th, eight males, four females; 29th, four males, four females; 30th, five males, three females; 31st, three males, two females; August 1st, three males, two females; 2nd, two females. Total—Males fifty-two, females forty-nine.

L. CANIOLA, 1865.

July 11th, two females; 12th, five females; 13th, two males, two females; 14th, two males, eleven females; 15th, two males, eleven females; 16th, eight males, twenty-two females; 17th, fifteen males, twenty-three females; 18th, twenty males, twenty-seven females; 19th, twenty-two males, ten females; 20th, twenty-five males, seven females; 21st, twelve males, nine females; 22nd, fifteen males, eleven females; 23rd, eight males, four females; 24th, seven males, five females; 25th, five males, one female; 26th, five males; 27th, two males. Total—Males one hundred and fifty, females one hundred and fifty. In this brood seven females appeared before the first male, and seven males emerged after the last female.

ORGYIA FASCELINA, 1865.

June 18th, one female; 19th, six females; 20th, two males, one female; 21st, three males, two females; 22nd, two males, three females; 23rd, one female; 24th, one male, two females; 25th, two males, one female; 26th, three males,

one female ; 27th, two males ; 28th, five males, two females ; 29th, one female ; July 1st, one male, two females ; 2nd, two males ; 4th, two males. Total—Twenty-five males, twenty-three females.

AMPHYDASIS PRODROMARIA, 1865.

February 27th, two females ; March 1st, one male, two females ; 2nd, three males, two females ; 5th, two males, two females ; 11th, one male, four females ; 12th, six males, three females ; 15th, two males, two females ; 16th, two males, one female ; 20th, two males. Total—Males nineteen, females eighteen.

DIANTHŒCIA CAPSOPHILA, 1865.

May 30th, one male ; 31st, two females ; June 1st, one male, one female ; 3rd, four males, four females ; 6th, six males, four females ; 7th, three males, three females ; 9th, three males, three females ; 10th, four males, four females ; 15th, two males, two females. Total—Males twenty-four, females twenty-three.

If I may suggest the conclusion to which my present limited array of facts points, it is that a few females are the first to appear, that about the middle of the flight the numbers of the sexes are equalized, and that the males continue to appear for a day or two after all the females have emerged from the pupa ; and this appears to be an arrangement admirably calculated to provide a partner for every female. From various causes female moths appear to be less numerous than males, but I believe this to be only in appearance : the female has more important business in hand than sipping sugar or flying round a lamp, and is also more lethargic in her habits. I have been struck with the equal division of the sexes in broods reared from the egg ; for instance, in the large brood of *L. caniola* reared this year, the number of each sex is exactly the same ; whereas at large I have never captured more than one female for ten males of this species.

—*Edwin Birchall* ; *College House, Bradford, November 4.*

287. *Colias Edusa* in Cornwall.—I think a record of the extraordinary number of *Colias Edusa* captured in this neighbourhood, by a collector, may be of interest to your readers. During the months of August, September, and up to the 14th of October, he took three hundred and forty-six ; he then, at my request, kept a daily record of his captures, resulting in

the following statistics :—October 14th, seventy-eight ; 16th, eighty-two ; 18th, twenty-five ; 20th, seventy ; 21st, fifty-four ; 23rd, eighteen ; 24th, seventy-two ; 25th, thirty-eight ; 28th, seventy-five ; November 1st, seventy-seven (the intervening days were Sundays and rainy days) : total, nine hundred and thirty-five. The numerical disparity in the sexes was at first most remarkable, there being but twenty-three females to three hundred and twenty-three males taken before the 14th of October, or fourteen males to one female : after that day the females became more plentiful, until on the last day they exceeded the males, the numbers being twenty-three females and twenty males. The total number of females captured was one hundred and ninety, reducing the average to four males to one female. There were eight of the pale or *Helice* variety taken. With very few exceptions all the captures were made in two fields of wheat-stubble, together about twenty-six acres in extent, situated close to the sea-shore, very hilly, with a south-east aspect. An interesting circumstance occurred on the 14th of October, when I went out to the collector's hunting-ground. When I arrived he had been there about an hour. Soon after he got there he saw a butterfly that had just escaped from the chrysalis : having marked the spot of ground by placing a stone upright, we easily found it again : it was in copulation with a male *Edusa*, the female being a specimen of *Helice*, with her wings not yet fully developed ; in fact the wings, when she was first observed, were not at all unfolded, so that the collector was not aware of its being *Helice* until he saw it the second time. Is it usual for copulation to take place so soon after emerging from the chrysalis ? For my part I have long thought such to be the fact, or at all events within twenty-four hours of the emergence of the female ; for whenever I have taken butterflies in copulation I have always observed that, however much the male may be faded, the female is sure to be fresh, and in most instances the wings are yet in a soft state.—*Stephen Clegg ; East Looe, Cornwall.*

288. *Colias Edusa* in November.—This morning, in company with Mr. Owen, I took a ramble along the cliffs in search of *Colias Edusa* : we saw five specimens, and succeeded in capturing four : the thermometer at the time was at 42° .—*H. Hudfield ; Ventnor, Isle of Wight, November 1.*

289. *Colias Edusa* and *C. Hyale* at *Exmouth*.—C. Edusa has been very abundant near Exmouth this season; the insect first appeared about the third week in July, and continued plentiful till the end of the first week in October, when the cold rains set in. I saw, however, three, in tolerably good preservation, on the 20th of this month. I have twice obtained the variety C. Helice, and I have seen a specimen of C. Hyale which was taken near Lympstone in the last week of July.—*J. W. B. Bell*; 11, *Louisa Terrace, Exmouth*, October 23, 1865.

290. *Colias Edusa* at *Eastbourne*.—There never were more of *Colias Edusa* than this year: this fine butterfly has appeared everywhere in the neighbourhood.—*John Dutton; Eastbourne*.

[Please not to send any more accounts of the capture of this insect during the present season, unless some particulars of its life-history are ascertained.—*Edward Newman*.]

291. *Life-history Scraps* in re *Colias Edusa*.—From one correspondent I learn that the females of *Colias Edusa* fly very low over the barley-stubble in the Isle of Wight; from a second that he observed copulation going on; from a third I find that the females settle on the dwarf clover-plants; and from a fourth that from a female caught in this occupation he obtained three eggs, which he kindly placed in my hands.—*Edward Newman*.

292. *Argynnis Lathonia*, &c., at *Aldeburgh* and *Bury*.—I have been fortunate in taking the following Lepidoptera this season.—At Aldeburgh, in July, *Argynnis Lathonia*, *Vanessa Polychloros*, *Notodonta cucullina*, *Mamestra furva* and *M. abjecta*. At Bury St. Edmunds, in June, I captured eight specimens of *Iodis vernaria* in one evening. At Tuddenham, in August and September, I took fifty larvæ of *Notodonta dromedarius*.—*A. H. Wratislaw*; *School Hall, Bury St. Edmunds*.

293. *Argynnis Lathonia* in the Isle of Wight.—I have taken two specimens of *Argynnis Lathonia*—one on the 21st of October, the other on the 24th, both of them males; and I think I saw a third before I took either of the others, but supposed it to be either *Euphrosyne* or *Selene*.—*Alfred Owen*; *Spring Cottage, Ventnor, Isle of Wight*.

294. *Argynnis Lathonia* at *Dover*.—*Mr. Richardson*

records, in the 'Entomologist's Monthly Magazine,' the capture of a specimen at Dover, in the garden of Mr. T. Clark, on the 16th of September.

295. *Vanessa Antiopa* near Tenterden. — Mr. Mitford records, in the 'Entomologist's Monthly Magazine,' the appearance of a specimen near Tenterden on the 7th of September: it was not taken.

296. *Acherontia Atropos* in Cornwall. — This insect has been abundant; I have had seven specimens, and heard of more. One of my specimens was caught on board a schooner in the Bristol Channel, ten miles from land; another in the English Channel, on board a fishing-boat, four miles from land.—*Stephen Clegg; East Looe.*

297. *Acherontia Atropos* at Eastbourne. — Several specimens of this fine moth have been captured in or near this neighbourhood lately. One was taken at Pevensey, by Mr. A. Vidler, last week. Mr. Bates, the birdstuffer, purchased one taken here on Thursday last. One was also captured by Mr. Dennis, in his extensive market-garden, a few days ago. I purchased a splendid one caught on the beach at Seaford on Tuesday last. The last that I have heard of was caught flying over a gas-burner in Victoria Place (and very much injured in consequence), on Saturday, October 14th.—*John Dutton; 51, Terminus Road, Eastbourne, October 16, 1865.*

[Please not to send any more records of the occurrence of this species at present.—*Edward Newman.*]

298. *Deilephila lineata* near Biggleswade. — A fine specimen of *Deilephila lineata* (or *D. Livornica*) was caught here on the 10th of September, hovering over geranium and other garden plants.—*J. W. Whitaker; Henlow, Biggleswade, Bedfordshire, October 17, 1865.*

299. *Deilephila lineata* in Cumberland. — I have to-day received a very fine specimen of *Deilephila lineata* taken near Harrington, in Cumberland.—*J. H. Tiltman; Linskill Terrace, North Shields.*

300. *Chærocampa Celerio* at Taunton. — On the 19th of September last I had brought me a specimen of *C. Celerio*. The boy who brought it told me he caught it in a window. He had taken the precaution to wrap it up carefully in brown paper, the consequence being that it was very much damaged. *William Bidgood; Museum, Taunton.*

301. *Chærocampa Celerio* at *Southsea*.—Mr. Horn records, in the 'Entomologist's Monthly Magazine,' the capture of a specimen at Southsea on the 26th of September.

302. *Chærocampa Celerio* near *York*.—Mr. Kington records, in the 'Entomologist's Monthly Magazine,' the capture of a specimen near Brough, East York, on September 29th.

303. *Macroglossa Stellatarum* in *Piccadilly*.—Whilst coming from Brompton to-day on an omnibus I remarked in Piccadilly, near Marlborough House, a largish insect flying in the same direction that I was going, and frequently alighting on the passers-by: on watching it carefully when settled I found it to be a specimen of *Macroglossa Stellatarum*.—*Stephen P. Smith*; 30, *Duke Street, Lincoln's Inn Fields*, November 3, 1865.

304. *Abundance of Macroglossa Stellatarum*.—I scarcely remember a season when this insect has been so common as during the past summer. Frequently I have seen two or three in one evening hovering over the verbenas, and have in two instances captured them with my hands; it requires, however, great caution and quickness to do this. Spending a few days in Guernsey in July, I was astounded by the swarms of this insect: they have a curious habit of settling on the walls and cliffs by the wayside: on one gravelly hill-side I saw fully thirty specimens in about five minutes.—*G. Norman*; *Hull*, October 1, 1865.

[I think I must close the records of this insect's occurrence, and return those now unpublished with very sincere thanks.—*E. Newman*.]

305. *Larva of Liparis Chrysorrhœa* feeding on a *Blackberry*.—While out insect-hunting I observed a larva of *Liparis Chrysorrhœa* on a ripe blackberry. At the first glance I took it to be crawling over the fruit in search of food, but on a closer examination I saw that it was feeding on the blackberry itself, which it seemed to enjoy, as more than one-half of the luscious berry was gnawed away by this gormandiser in less than three minutes. I shall be glad to hear, through the medium of the 'Entomologist,' if any of your readers have witnessed a like instance.—*F. Wilkinson*; *Stamp Office, Market Harborough*, October 11, 1865.

306. *Sterrhæ Sacraria* in the *Isle of Wight*.—A specimen of *Sterrhæ Sacraria* has been taken in the east of the Island,

and I have another taken here in 1859.—*Alfred Owen* ; *Spring Cottage, Ventnor*.

307. *Sterrha Sacraria* in the Isle of Wight.—Mr. Ingram records, in the 'Entomologist's Monthly Magazine,' that a specimen was beaten out of brambles upon St. Helen's Dover, on the 9th of September. In the same journal Mr. Dale, that prince of Entomologists, records the capture of a specimen opposite Hurst Castle.

308. *Sterrha Sacraria* near Horsham.—An undoubted specimen of *Sterrha Sacraria* was taken in July last near Horsham.—*R. D. Drewitt* ; *Peppering, Arundel*.

309. *Sterrha Sacraria* at Sugar near Exeter.—The Rev. J. Hellins records, at p. 115 of the 'Entomologist's Monthly Magazine,' that he took *Sterrha Sacraria* at sugar on the 5th or 6th of September.

310. *Sterrha Sacraria* bred.—Mr. Hellins also records, in the 'Entomologist's Monthly Magazine,' that he has raised this insect from eggs laid on the 19th of August: the larvae were hatched on the 29th of August, spun up between the 20th and 30th of September, and the moths appeared on the 15th of October. Mr. Hellins has described the larva.

311. *Acidalia mancuniata*, a new British Species?—Under this name Dr. Knaggs describes, in the 'Entomologist's Monthly Magazine,' an *Acidalia* which he believes new, and which has been seen by Mr. Doubleday, who possesses a European specimen unnamed: Dr. Knaggs' insects were sent to London by Mr. Batty, of Sheffield.

312. *Eupithecia consignata* at Leominster.—Although I have collected in this immediate neighbourhood for many years, I never met with *Eupithecia consignata* until 1864, when we took three specimens: the first was struggling at the root of an apple tree, I have not a doubt, with a spider which we noticed escaping after the net was placed over the moth. During that summer two more were taken. Of course this year we searched the orchards, and succeeded in capturing six more, and saw a seventh, which escaped. They are very difficult to see, and generally settle high up the tree. We have taken the insect in four different orchards.—*E. S. Hutchinson* ; *Grantsfield, Leominster*, October 3.

313. Larva of *Heliothis peltigera* feeding on the Common Marigold.—It is perhaps not generally known that the larvae

of *Heliothis peltigera* are fond of the flowers of the common marigold: I have taken seven feeding on them. They burrow in the petals of the flowers, and lie in a semicircle, preferring the bud when just opening. Two of the above were of a purplish brown colour, the others of a pale green similar to that of *Smerinthus Populi*.—*J. S. Dell*; 121, *Navy Row, Morice Town, November 7, 1865.*

314. *Larvæ of Epunda lichenea and Acidalia incanata*.—It may interest your Torquay readers to know that I took the full-fed larva of this insect last April, feeding on the leaves of the red valerian growing on the side of the Torbay Road: I believe I am right in calling it red valerian; however, no one can mistake the plant. The larva might be found in plenty, I doubt not, at night, with a lantern. I also bred the little *Acidalia incanata* from larvæ found feeding on the same plant.—[Rev.] *J. Greene*; *Cubley Rectory, Uttoxeter, Staffordshire*.

315. *Epunda lutulenta in Gloucestershire*.—In September I took a very good specimen (female) of the above insect, at sugar, in this locality.—[Rev.] *E. Hallett Todd*; *Windrush, on the Cotswold*.

316. *On breeding Lepidoptera in Confinement*.—Of late years much has been done in this unscientific, but interesting, pursuit; and it seems strange that few attempts of this sort were made by the older naturalists, though the well-known habits of *Bombyx Mori* indicated those of the species akin to it. There is little difficulty in getting most *Bombyces* and *Pseudo-Bombyces* to pair; but thereafter some are reluctant to deposit their eggs, as *Pygaera bucephala* and *Dicranura vinula*. When bred "in and in," however, certain species become dwarfed, and differ also in their markings from the original type: this is especially the case with *Liparis dispar*. Through this "domestic culture" species once rare in cabinets, such as *Endromis versicolor* and *Clostera anachoreta*, are now getting plentiful; and the day may soon arrive when *Eulepia cibrum* and *Notodonta carmelita* shall become also common. But no Entomologist should place in his collection specimens thus obtained, without a distinctive mark to show that they were not taken in a state of nature. A botanist would not, I presume, admit into his herbarium specimens of a British plant which had been raised in a

garden from seed: they would be valueless unless taken from their native soil. It is very doubtful whether any of the Diurni will pair in confinement; it is even difficult to get impregnated females to lay. Out of about a dozen species I have tried, I was only successful with *Satyrus Hyperanthus*. *Anarta Myrtilli* will pair, but the female refuses to lay, the eggs being probably dropped at random upon the heath while the insect is on the wing. The ubiquitous *Mamestra Brassicæ* will also pair, but I imagine not many others of the *Noctuæ*. Amongst the *Geometræ* the experiment might succeed with those species where the females are wingless, but I have not as yet tried it. *Biston hirtarius* pairs readily, and so also probably would *Amphydasis prodromaria* and *A. betularia*, its next-of-kin.—*John R. S. Clifford*; 21, *Robert Terrace, Chelsea*, October 2, 1865.

317. *Necrobia violacea* in a brick Wall.—I have sent you specimens of a coleopterous insect that I am curious to know a little about. While at my work on the 6th of September one of the boys brought me three specimens, and told me he knew where there were hundreds. I examined the spot, and they were in hundreds, some on the wing, others running over the wall, but the greater number hid up in the holes of the bricks, which I had to crush before I could get at them: they confined themselves to a space on the wall not exceeding six feet, over the flue of a case-hardener's furnace, and when the furnace is hot the heat and stench drive them out in swarms: they are a lively insect, and difficult to take with the hand: the boys have taken about forty dozen.—*W. West*; 6, *Green Lane, Greenwich*, October 12, 1865.

[The insect is *Necrobia violacea*: they feed on bones and dead bodies.—*Edward Newman*.]

318. Hearing of Insects.—Frequently the verbena-beds towards dusk are swarming with the Silver-Y *Noctua*. While steadily employed in probing the flowers with its proboscis, I frequently uttered a shrill squeak with my lips, when the insect seems at once disturbed. This I often repeated, and feel quite sure the noise was heard by the moth.—*G. Norman*; *Hull*, October 1, 1865.

Ceuthorhynchus suturalis.—Dr. Power's account of this interesting capture is unavoidably crowded out.

Duplicates and Desiderata.

Duplicates. — I have duplicates of the following insects for exchange :—L. Sinapis, C. Edusa, V. Cardui, N. Lucina, H. Actæon, S. Populi, M. Stellatarum, Z. Trifolii, N. Mundana, C. Villica, A. Mendica, P. Populi, E. Cervinaria, B. Glandifera, A. Pyramidea, &c. *Desiderata.* — P. Machaon, P. Crataegi, A. Adippe, M. Cinxia, M. Athalia, V. C-Album, S. Sibylla, E. Cassiope, E. Blandina, T. W-Album, L. Acis, H. Paniscus, &c. — *William Bidgood; Museum, Taunton, October 24, 1865.*

Duplicates, &c. — I have a number of duplicates of *Colias Edusa*, which I should be glad to exchange for *P. Machaon*, *A. Crataegi*, *L. Camilla*, *P. Arion*, or *M. Cinxia*. — *J. W. B. Bell; 11, Louisa Terrace, Exmouth, October 23, 1865.*

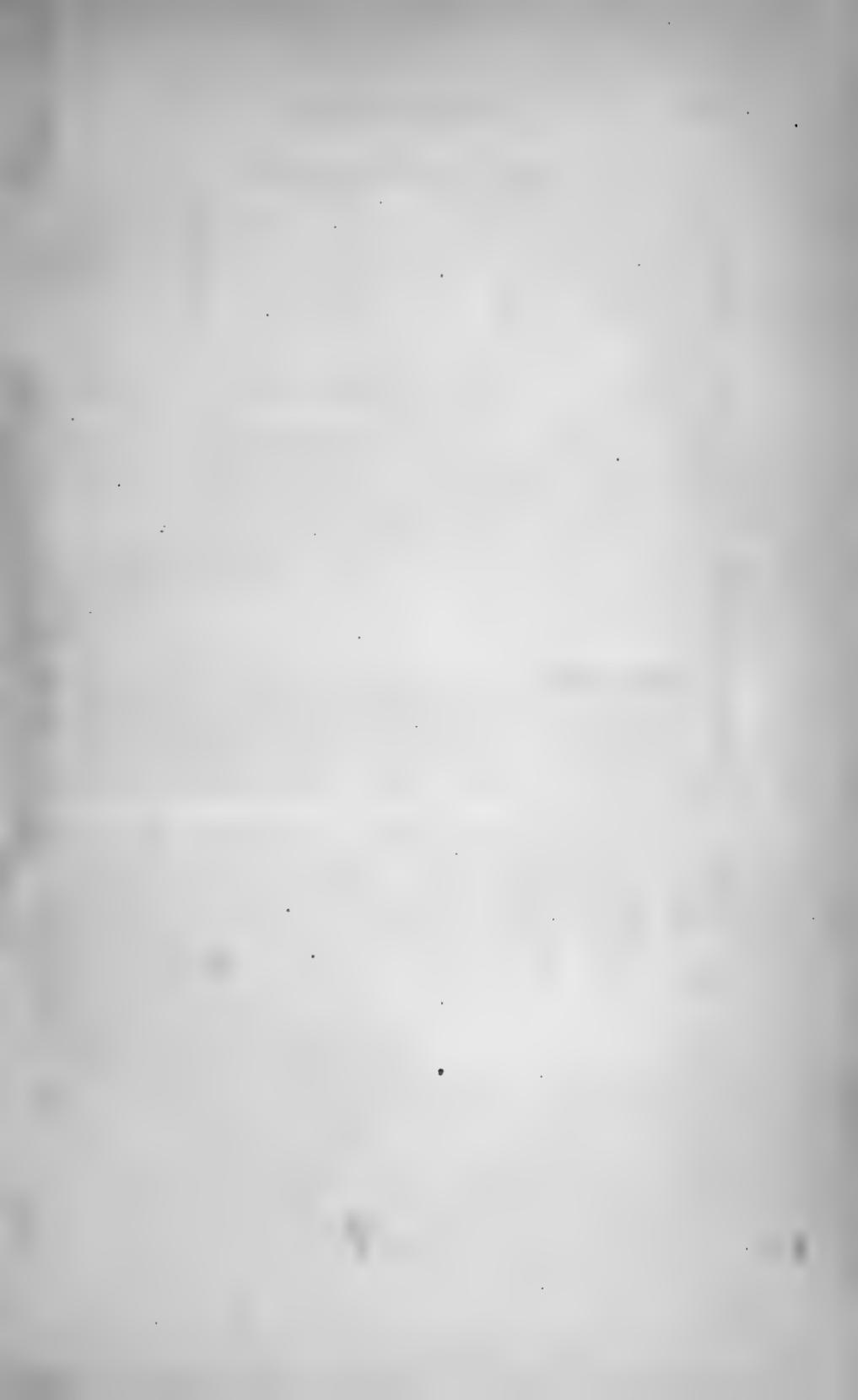
Insects for Exchange. — I have a good many duplicates of *N. Depuncta*, which I shall be glad to exchange for any of the following :—C. *Hyale*, T. *Betulæ*, W-Album, L. *Sibylla*, S. *Convolvuli*, *Ocellatus*, *Dominula*, *Lanestris*, *Furcula*, *Bifida*, *Fagi*, *Dictæa*, *Dictæoides*, *Ziczac*, *Alni*, *Templi*, *Vetusta*, *Interrogationis*. — *Joseph J. Armistead; Virginia House, Leeds.*

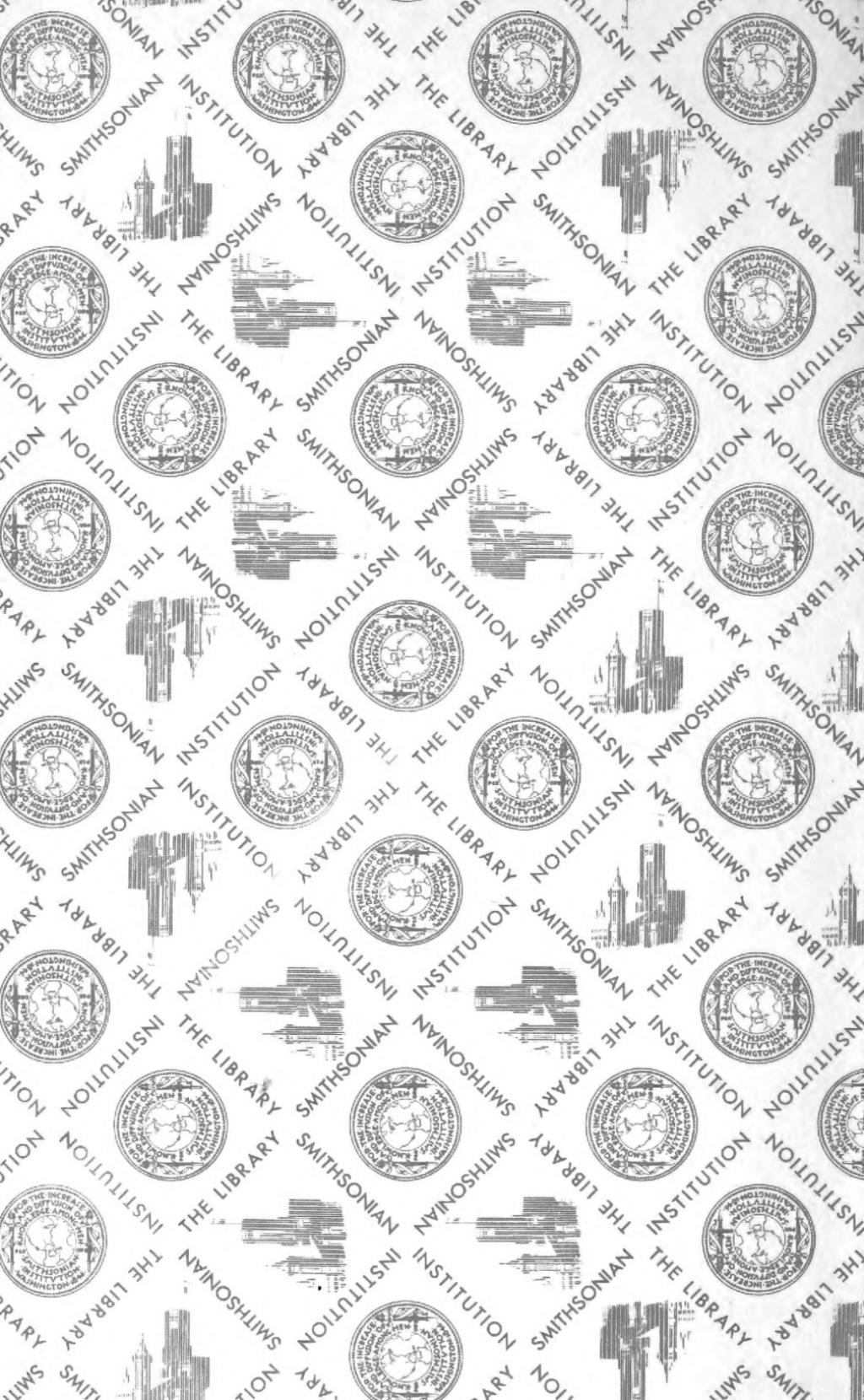
Duplicates, &c. — I have fine specimens of *Agrotis Cursoria* for exchange, and shall be glad to hear from any gentleman in want of the same. I have also fine bred specimens of *M. Stellatarum*. — *J. H. Tiltman; Linskill Terrace, North Shields, October, 1865.*

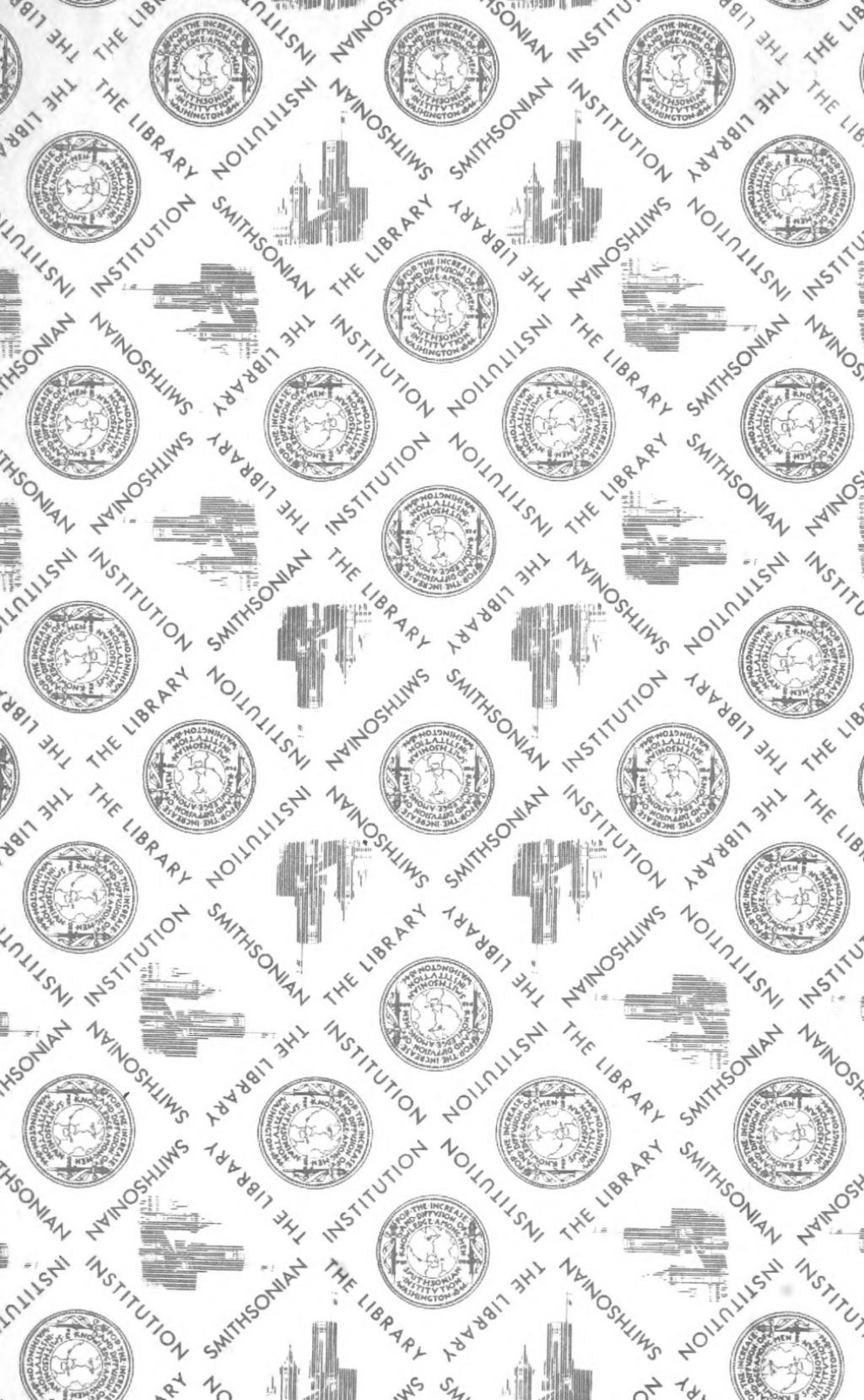
Duplicates taken this Season. — *Colias Edusa*, *Argynnus Paphia*, *A. Euphrosyne*, *A. Selene*, *Melitæa Artemis*, *M. Cinxia*, *Cynthia Cardui*, *Limenitis Sibylla*, *Arge Galathea*, *Thecla Rubi*, *T. Quercus*, *Lycæna Adonis*, *L. Corydon*, *L. Alsus*, *L. Argiolus*, *N. Lucina*, *Hesperia Sylvanus*, *Zygæna Trifolii*, *Z. Lonicerae*, &c., &c. — *Alfred Owen; Spring Cottage, Ventnor, Isle of Wight.*

Desiderata. — Would you oblige me by saying that I should feel grateful to anyone who could send me a few eggs or pupæ of *Clostera Curtula* and *Reclusa*, or a few larvæ of *E. Russula* or *C. Dominula*? — *[Rev.] J. Greene; Cubley Rector, Uttoxeter, Staffordshire.*

Duplicates. — I have fine specimens of *Dasypolia Templi*, &c., and shall be glad to receive offers for them. — *C. Smethurst; 19, Wellington Lane, West Street, Leeds, Nov. 2.*







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